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JAPAN
IN THE BEGINNING OF THE 20th CENTURY.


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JAPAN

IN THE

BEGINNING OF THE 20th CENTURY.

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1903.

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Preface.

The absence of any publication giving a succinct account of the actual condition of the economic and other affairs of Japan has long been felt, for though statistics and tables bearing on these matters existed, they could hardly be expected to convey anything like full or invariably intelligible information. It was, therefore, to supply this want that His Excellency Baron Hirata, Minister of State for Agriculture and Commerce, asked me in May of last year to undertake the compilation of the present work so that foreigners coming to Japan to visit the Fifth Domestic Exhibition held at Osaka might be enabled to carry away a definite and correct idea of the extraordinary progress Japan has made in all spheres of activity during the last few decades. The work of compilation was at once started at all the offices of the Department and at the same time the other Departments of State were asked to furnish material relating to their respective provinces. The result of these compilations is embodied in the present publication. It is very much to be regretted that lack of sufficient time has to a considerable extent prevented the compilation from being made in a more satisfactory manner, has caused redundancies in some chapters and omissions in others, has prevented the work, in short, from being as well proportioned and as carefully written as it might otherwise have been. The difficulties experienced by the translators and the printers were for the same reason,—lack of time, —very great. Under these circumstances it was impossible to bring the compilation up to the level of excellence to which I had intended to bring it at first; but I hope that I shall have an opportunity at some time in the near future, to revise a work in which I flatter myself that I have at any rate succeeded in making a beginning, after which subsequent work of emendation and augmentation will be comparatively easy.

June 36th year of Meiji (June, 1903).

HARUKI YAMAWAKI,
Private Secretary to the Minister of Agriculture and Commerce.

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JAPAN IN THE BEGINNING OF THE 20TH CENTURY.

PART I.

INTRODUCTORY REMARKS.

CHAPTER I.—Geography.

Position—Area—Geographical Formation—Geological Formation—Climate.

I. POSITION.

In the north-west corner of the Pacific Ocean and close to the eastern coast of the continent of Asia a chain of islands stretches in an oblique line from north-west to south-west, from the vicinity of the Philippines to the southern extremity of the peninsula of Kamchatka, in Russian Siberia. These countless islands large and small, or at least the greater number of them, for we do not of course go further south than Formosa, constitute the Empire of Japan. To be more precise, the territory of the Empire consists of five large islands and about six hundred small ones. Our most southernly degree of latitude is 21° 48′ N. L. at the northern extremity of the island of Formosa, and our most northerly degree of latitude is 50° 56′ at the northern extremity of Araito Island, Shumushu district, Chishima province (the Kuriles); while, as regards longitude, the position of Flower Island, the most westerly of the Pescadores, corresponding to 119° 20′ E. L. Greenwich, is the limit of our Empire on the west; and the position of Shumushu Island, Shumushu district, Chishima province (the Kuriles) corresponding to 156° 32′ E. L., Greenwich, is the eastern limit of Japanese

territory. In latitude, therefore, Japan extends 29 degrees 8 minutes, and in longitude 37 degrees 12 minutes. As the greatest length of each island is, however, generally from south-west to north-east and as the breadth from east to west is comparatively less, and, furthermore, as the whole series of islands from Formosa in the south to Chishima in the north runs from south-west to north-east almost in one continuous line, Japan contains a smaller extent of land than one would expect from the enormous distance separating its northern from its southern extremity.

Japan is made up of the five larger islands of Honshu, Shikoku, Kyūshū, Hokkaidō and Formosa, the five smaller islands of Sado, Oki, Iki, Tsushima, Awaji and the Pescadores (which are, however, a group of islands), and finally of the three archipelagoes of Chishima, Ogasawara (the Bonin Islands) and Okinawa (the Loochu). Of the above islands Honshu is the broadest. In shape it somewhat resembles the figure of a fabulous dragon with its head erect.

Honshu is bounded on the north by the Pacific Ocean, while on the north-west it looks across the Sea of Japan towards the Korean Peninsula and the eastern coast of Siberia. But for the intervening Inland Sea it would embrace within the curve of its southern extremity the island of Shikoku. At the western extremity of Honshu lies the province of Nagato while its northern tip thrusts itself into the strait of Tsugaru, on the opposite side of which lies the province of Ōshima of the island of Hokkaidō. As for the lesser islands of Honshu, there are in the Japan Sea the two islands of Sado and Oki, and in the Pacific Ocean the Ogasawara archipelago (the Bonin Islands) which form, in a sense, the southernmost extremity of Honshu. In the famous Inland Sea, off the western coast of the provinces of Kii and Izumi lies the island of Awaji, covering an area of 36 square *ri*, and forming as it were a connecting link between Honshu and Shikoku.

Shikoku is the smallest of the five great islands and its north-eastern coast faces, across the Inland Sea, the provinces of Kii, Izumi, and the southern coast of the Sanyō-dō route. The island is washed on the south by the Pacific Ocean and is separated at its northern extremity by the strait of Bungo from the provinces of Buzen and Bungo on the eastern coast of Kyūshū.

Kyūshū lies to the west of Honshu and Shikoku and is a large

island measuring more from north to south than it does from east to west. The two islands of Iki and Tsushima lie to the north of Kyūshū and belong to it geographically as well as for administrative purposes.

Tsushima lies opposite the port of Fusan in Korea, from which it is separated by the narrow passage known as the Strait of Korea. or Broughton strait. It may be noted that the western part of Kyūshū faces the eastern coast of China, though it is at a greater distance from that coast than Tsushima is from the coast of Korea, the intervening seas being the Yellow Sea and the China Sea.

Okinawa (Loochu) lies off the southern extremity of the island of Kyūshū and runs in a south westerly direction. The most southerly island in the Okinawa group is Haterumajima whose coast-line runs parallel to the eastern coast of northern Formosa and is situated at 24° 6′ N. L. Finally, the western side of the whole archipelago faces the provinces of Chiangsu, Chekiang and Fukien of China, while the eastern side is washed by the waters of the Pacific.

Formosa forms the southernmost limit of our territory. It lies due south of the most southern island of the Loochu archipelago and extends southward to no great distance from the northern shore of the island of Luzon, one of the Philippine group, from which it is separated by the Strait of Boshi. The southernmost extremity of Formosa is on 21°48′ N. L. The western coast of Fosmosa faces the province of Fukien, China, and midway between the two coast-lines lie the Pescadores. The coast is fairly well indented and its principal harbors are Tansui (Tamsui), Anpei (Anping) and Takao, all of which ports supply shipping facilities between the island and the interior of China. The eastern coast of Formosa is, on the other hand, a magnificent line of precipitous cliffs and affords, therefore, very few, if any, good anchorages. The harbor of Kelung is, it is true, a tolerable port, but it is situated on the northern and not on the eastern coast.

The Pescadores consist of no less than 47 islands, mostly small; and owing to the naturally advantageous position of the group, half-way between Formosa and the eastern coast of southern China, it serves as a place of refuge for ships sailing along the coast of Formosa and between that coast and the opposite shores of China.

Hokkaidō, formerly known by the name of Yezo, is a large

island situated to the north of Honshu from which it is separated by the Strait of Matsumaye (or Tsugaru, as it is called in some maps). This island is (if we leave out the Kuriles) the northern limit of our Empire and its western coast lies opposite the northern coast of Korea and the eastern coast of Russian Siberia while its most northerly point comes close to the southern extremity of the island of Saghalien from which it is only separated by a narrow passage, the Strait of Soya. The coast of Kitami which extends eastward from Cape Soya to the Bay of Nemuro faces the Chishima group and the promontory of Kamchatka and forms, as it were, the southern boundary of the Sea of Okhotsk.

The whole south eastern coast of Hokkaidō proper is washed by the Pacific.

Chishima is a volcanic group stretching in an oblique line towards the north-east from the Bay of Nemuro in which Etrup, the most southerly of the group lies, and terminating near the southern extremity of Kamchatka. The whole chain separates the Sea of Okhotsk from the northern Pacific.

To briefly describe the geographical relations of our Empire to foreign countries, we find to the east and on the opposite side of the Pacific Ocean the western shores of the British Dominion of Canada as well as those of the United States of America. The harbor of Yokohama lies almost in a straight line with San Francisco, 4,722 miles distant. Then, to the north-west of Japan and on the other side of the Sea of Japan, lies the vast plain of Russian Siberia.

Vladivostock lies opposite the southern part of Hokkaidō while the northern coast of Korea is separated by the Sea of Japan from the two main divisions of Honshu, vz., San-in and Hokuriku.

The harbor of Fusan which is situated at the southern extremity of the Peninsula of Korea lies close to the northern portion of Kyūshū; while, opposite the main bulk of Kyūshū, lies the provinces of China that are bordering on the Yellow Sea, the Eastern Sea, and the China Sea.

Formosa, being the most southerly possession of the Empire, forms an important station for the carrying on of our intercourse with the South Sea Islands and with Australia. Its economic

development has, since its annexation to Japan, been very striking; and there are great hopes of an increased advance in the same direction.

As the geographical position of a country may be said to make it prosperous or otherwise, the prosperity of Japan and the energy of its people may easily be explained, for it extends in the temperate zone from 21° to 50° N. L., and enjoys in consequence a temperate climate which may be regarded as excellently suited for the industrial pursuits in which our race has made a very marked progress both by sea and land from the earliest ages. It was quite in accordance, therefore, with the nature of things that our forefathers should have called the land "Toyo ashiwara no mizuho no kuni" (Land of Plenteous Ears of Rice in the Plain of Luxuriant Reeds). Moreover the country is, we need hardly remark, one of great natural beauty and is inhabited by a people who are universally acknowledged to possess a singularly refined taste in all artistic matters and whose great attainments in the arts, pure and applied, have always been admitted on all sides.

Owing to its geographical position our country constitutes a community distinct in several respects, socially and politically, from the adjacent countries of Asia. The most marked of these distinguishing traits is that Japan has, for the last 2,550 year, been ruled by the same Imperial Family, without a solitary break in the succession, thus offering a strong contrast to China and Korea where frequent dynastic changes have taken place. Then the great natural valor of the people has guarded like an impregnable wall the coasts of their islands, with the result that never once during these two and a half thousand years has the country suffered from foreign aggression. All these facts have enabled our people to maintain intact their peculiar customs and unique nationality; but it cannot of course be denied that in culture, in the arts, in political institutions and in other civilizing factors, Japan has, as a natural and invariable result of geographical proximity, learned much from China, Korea, and even from India, exactly as in mediœval Europe England learned much from France, England and France much from Italy, and Italy much from Greece and Constantinople.

We have just spoken of Japan's maintaining intact its peculiar customs and its unique nationality, but that can hardly be said with strict accuracy to-day for, owing to the opening up of the country to foreign intercourse and commerce a little over 50 years ago, a very extraordinary change has come over this Empire, a change which has affected not only the internal state of the country but its external relations as a member of the family of nations as well. It need not be stated here, for the fact is sufficiently well-known, that Japan suddenly decided at the period in question to adopt the western form of civilization in some essential particulars. Her energy and thoroughness in carrying out that resolve have astonished the world; and her efforts, instead of flagging, seemed only to become greater and greater as success after success rewarded them. We cannot, however, go into this subject in detail at present; suffice to say that the Japan is a very different country to the Japan which Hideyoshi and Ieyasu ruled over, in fact if these old warriors were to return to earth, it were doubtful if they would recognize their own countrymen.

One thing that would certainly astonish them would be the manner in which our country has become a focus of navigation routes in the Pacific and a great market in the Far East. To our east we have Canada, the United States of America, Mexico, and the Pacific coast of South America with all of which we are engaged, or are about to engage, in active commerce. We build our greatest expectations on the United States of America which is at present our best customer. The leading harbors on its Pacific sea-board, that is San Francisco and Seattle, together with Vancouver and Victoria of British Columbia, are connected with this country by regular steamship lines; and it is easy to see that Japan's commercial relations with Europe will be altered for the better on the completion of the Panama canal.

To our north-west we have, as has been already pointed out, the vast extent of Russian Siberia, whose great trans-continental railway, just completed, brings Europe and Japan nearer to each other than ever they were before. Then, again, Korea is, owing to its proximity, inviting as to exploit its resources and to stimulate it by the introduction of our industrial and commercial activity. Of

course our commercial relations with China are far more important. We need not point out that this vast empire covers an area of 760,000 square *ri* and contains about 400 million souls. A near relation of ours, this great empire naturally looks to us for help in her endeavours to advance along the path that we have already trodden and to have its vast resources exploited by the money and enterprise of foreign countries. There can be no manner of doubt, therefore, that China's commercial relation with us will become in the future one of far greater importance than they are to-day, especially when the comparative proximity of the two lands is taken into consideration, none of the Chinese harbors being separated from our harbor of Nagasaki by more than 700 miles. Hongkong, too, though politically forming part of the British dominions, is a place of importance to us in connection with Chinese commerce, serving as it does as an important market for the goods going from Japan to China or *vice versa*. Indeed it occupies the second place on our list in regard to the volume of commercial transactions. It is separated from Nagasaki by 1,070 miles while between it and the port of Anping, Formosa, the distance is only 300 miles.

Lastly, turning our eyes southward, we find Australia with its fertile fields and rich resources, while the Philippines, Java, Dutch India, British India and so on promise to establish in the future far more active commercial relations with us than are existing at present.

Such is briefly our geographical situation. The Pacific Ocean on our east, and the Sea of Japan and other seas on our west, all serve as highways along which our commercial relations with the world are carried on.

II. AREA AND ADMINISTRATIVE DIVISIONS.

The whole area of our Empire covers 27,062 square *ri*, corresponding roughly to the 325th part of the entire land surface of the globe and to 107th part of the entire land extent of the continent of Asia. The whole area is distributed as follows among our principal islands.

Principal islands.	No. of minor islands.	Area (sq. *ri.*)
Honshu	166½	14,571.12
Hokkaidō	12	5,061.90
Kyūshū	150	2,617.54
Formosa...	29	2,253.24
Shikoku...	74½	1,180.67
Chishima (32 islands)	—	1,033.46
Loochu (55 islands)	—	156.91
Sado	—	56.33
Tsushima	5	44.72
Awaji	1	36.69
Oki	1	21.89
The Pescadores	47	14.33
Iki	1	8.63
Ogasawara group (20 islands) ...	—	4.50

It will thus be seen that, if 100 represents the whole area of the Empire Honshu occupies 53.84 parts, Hokkaido 18.70, Kyūshū 9.67, Formosa 8.33, Shikoku 4.36, Chishima 3.82 and the rest 1.28.

Again comparing our area with that of some other countries it is found to be 1/30 of the area of Russian Siberia, 1/26 of that of China, double that of Korea, 1/22 of that of the United States of America, 1⅔ of that of British Isles about .26 less that of France, and about .29 less that of Germany.

Administrative Divisions:—For administrative purposes our country is divided into forty-six prefectures together with Hokkaidō and Formosa, these prefectures being as follows:—Tokyo, Kyoto, Ōsaka (these three being called *Fu*), Kanagawa, Saitama, Chiba, Ibaragi, Tochigi, Gumma, Nagano, Yamanashi, Shizuoka, Aichi, Miye, Gifu, Shiga, Fukui, Ishikawa, Toyama, Niigata, Fukushima, Miyagi, Yamagata, Akita, Iwate, Aomori, Nara, Wakayama, Hyōgo, Okayama, Hiroshima, Yamaguchi, Shimane, Tottori, Tokushima, Kagawa, Ehime, Kōchi, Nagasaki, Saga, Fukuoka, Kumamoto, Ōita, Miyazaki, Kagoshima, Okinawa (all of which are called *Ken*). Each *Fu* or *Ken* is in turn subdivided into *Shi* (city or urban district) and *Gun* (rural district), the latter of which is further subdivided into *Cho* (town) or *Son* (village). As the admininistrative system exists at present, the *Shi*, *Cho* and *Son* con-

stitute the smallest division for administrative purposes, and they, together with the *Gun*, form a self-governing entity. In Hokkaido the local administrative system was inaugurated in the 30th year (1897) while in Okinawa the administrative and self-governing system was inaugurated in the 29th year (1896.) At present there are throughout the country (exclusive of Formosa) 638 *Gun*, 58 *Shi* (the administrative districts in Hokkaidō and Okinawa included), 1,054 *Cho*, 13,468 *Son* (exclusive of those of the seven islands of Izu and Ogasawara). Formosa, which was ceded by China to our country in the 28th year (1895) as a result of the Shimonoseki Treaty of Peace, is subdivided into 20 *Cho* for administrative purposes, each *Cho* consisting of *Hori* and *Gō-ō*. The former is in turn subdivided into *Kwai-sho* and the latter into *Sha*. Below is appended the list of *Fu* and *Ken* with their respective areas and the number of *Gun, Shi, Cho* and *Son* under each.

HONSHU.

Name of prefecture.	Area.	No. of *Gun*.	No. of *Shi*.	No. of *Cho*.	No. of *Son*.
Tokyo-fu...	125.80	8	1	20	158
Kanagawa-ken ...	155.67	11	1	22	206
Saitama-ken	265.99	9	—	42	350
Chiba-ken	326.15	12	—	66	289
Ibaragi-ken	385.18	14	1	44	336
Tochigi-ken	411.77	8	1	29	146
Gumma-ken	407.25	11	2	36	171
Nagano-ken	853.76	16	1	21	372
Yamanashi-ken ...	289.85	9	1	6	241
Shizuoka-ken	503.82	13	1	35	307
Aichi ken	312.78	19	1	68	602
Miye-ken	368.55	15	2	19	325
Gifu-ken...	671.45	18	1	39	305
Shiga-ken	258.44	12	1	7	195
Fukui-ken	272.40	11	1	9	171
Ishikawa-ken	270.72	8	1	15	260
Toyama-ken	266.41	8	2	31	239
Niigata-ken	824.59	16	1	54	762
Fukushima-ken ...	846.07	17	1	31	389

Name of prefecture.	Area.	No. of *Gun.*	No. of *Shi.*	No. of *Cho.*	No. of *Son.*
Miyagi-ken	540.79	16	1	27	176
Yamagata-ken ...	600.15	11	2	24	205
Akita-ken	754.00	9	1	31	208
Iwate-ken	899.19	13	1	22	218
Aomori-ken	607.03	8	2	7	161
Kyoto-fu	296.55	18	1	18	263
Ōsaka-fu	115.72	9	2	11	293
Nara-ken	201.42	10	1	18	142
Wakayama-ken ...	310.62	7	1	14	217
Hyogo-ken	556.68	25	2	29	402
Okayama-ken	420.98	19	1	20	427
Hiroshima-ken ...	520.78	16	2	27	422
Yamaguchi-ken ...	389.99	11	1	5	226
Shimane-ken	435.82	16	1	12	321
Tottori-ken	224.16	6	1	7	228
Total	14,690.53	429	40	866	9,733
SHIKOKU.					
Tokushima-ken ...	271.28	10	1	2	137
Kagawa-ken	113.50	7	2	11	169
Ehime-ken	341.17	12	1	16	285
Kochi-ken	454.72	7	1	11	186
Total	1,180.67	36	5	40	777
KYŪSHŪ.					
Nagasaki-ken	335.15	9	1	15	288
Saga-ken	160.08	8	1	7	127
Fukuoka-ken	317.81	19	4	37	344
Kumamoto-ken ...	465.47	12	1	29	338
Ōita-ken	402.73	12	—	25	256
Miyazaki-ken	487.34	8	—	7	93
Kagoshima-ken ...	602.31	12	1	—	380
Total	2,670.89	80	8	120	1,826
Okinawa-ken	156.91	5	2	—	563
Hokkaidō	6,095.36	88	3	28	569
Formosa	2,267.57	—	—	—	—
Grand total ...	27,061.93	638	58	1,054	13,468

History of Administrative Divisions:—The present divisions are traceable to the first administrative divisions marked out by the Imperial Government in July of the 4th year of Meiji (1871). After the surrender of the Regency by the Tokugawa Shogunate in the 1st year (1869) and the reinstatement of the Imperial Government, the local administrative system was established by subdividing the country into the three main divisions of *Fu*, *Han*, and *Ken*, with *Fu-Chiji* (Governors of Fu) *Ken-Chiji* (Governors of Ken, or *Han-shu* (Governors of Han) placed over these divisions respectively. At that time, therefore, the local administration was conducted in conformity with the former Han (or feudal) administrative system. It was in the 4th year that the system was completely reorganized, though even then the country was subdivided into as many as 1 *Dō*, 3 *Fu* and 302 *Ken*. Similar amalgamations and separations have frequently been carried out subsequently, till at last the existing local system has been evolved.

Apart from the present administrative subdivisions there survives from former times another system of local subdivisions of historical importance. These divisions are the 8 *Dō* (or routes) and 85 *Kuni* (or provinces). In tracing up the development of this particular system, it is found to have originated in the subjugation of the country by the first Emperor Jimmu, who established a feudal system and placed in important districts followers of his own who had distinguished themselves, conferring upon them the official titles of *Kuni-no-Miyastuko*, or *Agata-nushi*. It will thus be seen that the local subdivisions of provinces were at first of political origin. The subsequent Emperors followed the example set by their ancestor, and marked out the subdivisions of *Kuni* and *Agata* with a *Kuni-tsuko* appointed over each of them. All these subdivisions were determined by geographical considerations. It was however after the great change carried out by the Emperor Temmu in the year 673 (90 A.D), that the names of Kinai and the 7 *Dō* were first fixed upon, while, again, it was between the era of Yoro (717–'23 A. D.) of the Empress Gensei (714–'23) and the Tencho era (824–'33) of the Emperor Junna (824–'33) that the small subdivisions of *Kuni* and *Gun* were first determined upon. According to the system then elaborated, the whole country was subdivided into Kinai and the 7 *Dō* and 69 pro-

vinces, with the island of Yezo as a sort of territory. The *Dō* were Nankaidō, Tōkaidō, Hokuriku-dō, Tōsan-dō, Sanyō-dō, Sanin-dō, and Saikai-dō (or Kyūshū). Kinai was, properly speaking, also one of these *Dō*, but this special designation was adopted in view of the fact that the five provinces of Yamashiro, Yamato, Kawachi, Izumi, and Settsu which constitute Kinai were situated round the then capital of the country. Nankai-dō comprised Kii, Awaji, Awa, Sanuki, Iyo and Tosa (the latter four of which constitute Shikoku.) A stretch of land lying on the east of Kinai and extending along the eastern coast of Honshu was called Tōkai-dō. It comprised Iga, Ise, Shima, Owari, Mikawa, Tōtōmi, Suruga, Kai, Izu, Sagami, Musashi, Awa, Kazusa, Shimōsa, and Hitachi, 15 provinces in all. Hokuriku-dō was a stretch of land lying along the Sea of Japan and situated to the north of the central portion of Honshu. It consisted of the seven provinces of Wakasa, Echizen, Kaga, Noto, Etchu, Echigo and Sado. Tōsan-dō lay between Tōkai-dō and Hokuriku-dō and extended northward along the centre of Honshu till it reached its northern extremity, the eight provinces of Ōmi, Mino, Hida, Shinano, Kōzuke, Shimozuke and Mutsu composing it. Sanyō-dō was the southern strip of land of Honshu to the west of Kinai and lying along the Inland Sea. It comprised the eight provinces of Harima, Mimasaku, Bizen, Bitchu, Bingo, Aki, Suwo and Nagato. Sanin-dō was situated at the back of Sanyō-dō, facing the Sea of Japan and contained Tamba, Tango, Tajima, Inaba, Hōki, Izumo, Iwami and Oki. Lastly Saikaidō contained Chikuzen, Chikugo, Buzen, Bungo,Hizen, Higo, Hyūga, Ōsumi, Satsuma, and the two outlying islands of Iki and Tsushima. The island of Yezo now Hokkaidō, subdivided before it was into provinces subsequent to the Restoration was known by the collective name of Yezo.

Although, as described above, our original local subdivisions owe their existence to considerations of administrative convenience, they lost much of this original significance subsequent to the period of the ascendancy of the Genji and Heikê clans, when the real power of the country passed into the hands ef the military classes and feudalism gradually came into existence. The powerful clans began to set themselves up in various parts of the country and while some absorbed several provinces each of the minor clans had to content itself with holding only a part of one province.

Important changes ensued in the local arrangements on the advent of the rehabilitated Imperial Government. In the 1st year of Meiji (1866) the province of Mutsu was split up into Iwaki, Iwashiro, Rikuzen and Rikuchū, and the province of Dewa into Uzen and Ugo. Further, in the 2nd year (1867), the name Yezo was superseded by that of Hokkaidō and the island thus designated was subdivided into the 11 provinces of Oshima, Shiribeshi, Iburi, Ishikari, Teshiwo, Hidaka, Tokachi, Kushiro, Nemuro, Kitami and Chishima. Hokkaidō was further subdivided into 86 *Gun*, and an "Imperial Colonization Committee" (Kaitakushi) was despatched to take charge of the administration of the island.

In the 5th year (1870) the Okinawa group was given a collective designation, being called the Province of Loochu, and joined on to Nankai-dō. In the 8th year (1873) Saghalien was as the result of a treaty with Russia, exchanged for the Etrup group which was annexed to Chishima.

It will thus be seen that according to this special system of local subdivisions the country at present comprises 1 Kinai and 8 *Dō*, with 85 provinces. This classification no longer, however, possesses any of the political importance which once attached to it, but it is still in vogue, side by side with the existing administrative system. Of some archæological interest as being the oldest system of this description, it also serves more or less as a natural and geographical boundary for the manners and customs of the different places.

III. GEOGRAPHICAL FORMATION.

Mountain ranges:—Japan is on the whole mountainous, extensive plains being comparatively rare. Owing to the mildness of the climate and the abundance of the rainfall, forests are found everywhere throughout the land, feeding the headwaters of rivers which in turn intersect the country in almost every direction and serve as means of irrigation as well as highways for transportation. Our country also lies along one of the world's most noted volcanic routes and the volcanic cones that stand in almost every part tend very much to add to the diversity of the natural scenery and to

heighten by contrast the natural beauty of the country, however destructive they may be at times.

The mountain ranges of Japan may be classified into two main divisions, namely Paleozoic and volcanic. These two kinds of ranges intersect each other in many places and generally extend along the central portion of the land, dividing it therefore into two sections and also forming its watershed.

The mountain ranges may by their general formation be divided into two great systems, the northern and the southern. The former extending from north to south, is known by the name of the Saghalien system as it starts from the Russian island of Saghalien. It passes into our territory at Hokkaidō where it branches out into several subsidiary ranges. It then takes a south-westerly course, and enters Honshu by the northern coast. In the central portion of Honshu it spreads outinto several high ranges. It is here that the Saghalien system encounters the Kunglung system coming from the south.

The Kunglung system, otherwise called the Chinese system, takes its rise in the Kunglung range in China. After traversing the central portion of the island of Formosa it divides itself into two sub-ranges, one of which enters Kyūshū from the south-western coast and reaches Honshu *via* Shikoku and the peninsula of Kii. Finally, it passes through the provinces of Yamato, Mikawa and Totomi and ends on the borders of Shinano. The other sub-system enters Honshu from its western coast, separates the San-in and Sanyo-dō regions, and passes along the northern side of Lake Biwa till it enters the province of Hida where it is met by the other sub-system and also the Saghalien system. The consequence of this meeting is that many lofty peaks are formed in Hida. This encounter of the different systems also results in the sending southward of a chain of volcanic peaks which, beginning in Suruga and Sagami, passes on to the islands of Izu and far into the Pacific Ocean. This chain is known by the name of the Fuji volcanic chain.

The Paleozoic mountain system in Hokkaidō begins at Cape Sōya. After passing along the border of the provinces of Kitami and Teshiwo it meets with, in the central part of the island, the Chishima volcanic mountain system that enters the island from its eastern coast. At the junction several high peaks such as

Teshiwo (5,247 *shaku*), Ishikari (6,715 *shaku*), Tokachi (5,979 *shaku*) are formed. This Paleozoic chain separates Hidaka from Tokachi and finally extends southward as far as Cape Erimo.

The volcanic chain mentioned above originates in the eastern part of Kamchatka and, after extending to the south-west and forming the volcanic archipelogo of Chishima it enters via Kunajiri island the main island of Hokkaidō at the boundary between Nemuro and Kitami. At the boundary between Kitami and Kushiro this system encounters another system and this meeting place of the mountain systems is marked by such volcanic cones as Raushi-san (5,409) Shari-dake (5,200), Oakan (4,979), and Me-akan (5,336). There is another volcanic chain in the south-western part of the island. It originates in the sea off the coast of northern Teshiwo, enters Kushiro and Iburi, and forms Tarumaye-san (2,929), Noboribetsu (3,375) and Usu-dake. It enters by way of Volcano Bay the peninsula of Oshima where it forms Komagatake (3,626) and Esan (1,386) and finally crosses over to the main island of Japan *via* the Strait of Tsugaru. This is called the Iburi volcanic system.

Owing to this peculiar geographical formation, the island of Hokkaidō surpasses all the other parts in the Empire in its extensive forests and plains, these measuring no less than 8,900,000 *cho* in area. Hokkaidō therefore is noted for its timbers which are excellent for general architecture and ship'building. Then the Yūbari coal mines situated at the foot of Mount Yūbari are, together with the Poronai and Utashinai coal mines, famous for the coal they produce.

There are two mountain ranges in the northern part of Honshu. One of them takes its rise on the southern bank of the river Hachinohe, Mutsu. It then runs southward, enters Rikuchu, and finally reaches the vicinity of the Bay of Matsushima, after extending along the eastern bank of the river Kitakami. In this range Hayai-dake (6,270), Yakushi-dake, and Murone-san are the highest peaks.

The other range arises at the headwaters of the river Abukuma, and stretching southward it enters Hitachi. Reizan and Hayama (3,548) Yadaijin-san and Akai-dake (2,376), Hakko-san (3,323) and Kaba-san (2,531) and Tsukuba-san (2,897) form the crests of the chain. Of the two the former range is known by the name of the Kitakami range and the latter by that of the Abukuma range.

There are two ranges of volcanic cones in the north-eastern part of Honshu the two together forming the backbone of that island. One originates at Osore-yama at Tonami Peninsula and terminates at Asama-yama, Shinano. Yakkōda-san (5,232), Ganju-san (6,797), Zōō-dake (6,481), Ōbandai-san (6,072), Hiuchi-yama (6,539), Komagatake (6,811), Nasu-dake (6,310), Akagi-san (6,431) are the loftiest peaks in this range, which at Nikkō spreads out into a medley of high peaks. This is called the "Tōtō central volcanic range." The other is known by the name of the U-yetsu volcanic range and starts from Iwaki-san (5,161), Mutsu. Like the former, it enters Shinano, sending up along its route Chokai-san (6,885), Haguro-san, Gessan (6,780), Yudono-san, Mikagura-san (4,022) and Shirane-san (7,069).

These two ranges form the watershed of the north-eastern section of Honshu and send the rivers taking their rise in it into the Sea of Japan on one hand and into the Pacific Ocean on the other. The forests abounding in the forests of Aomori and Akita-ken are noted for the production of fine timber, while the forests in the Nikkō group produce excellent timbers of *sugi* (Japanese cedar) and *hinoki* (Japanese cypress). Then in the U-yetsu range there is the Ani Copper Mine in Ugo and the Ozaruzawa Copper Mine in Rikuchū, while the famous Copper Mine of Ashiwo is situated in the Nikkō group.

The meeting of the Saghalien and the Kunglung Mountain systems at the boundary of Shinano and Hida results in great upheavals of the surface, one of the most noteworthy being the Fuji volcanic range which, with Mount Fuji as a centre, extends northward to the headwaters of the river Arakawa at Echigo, and extends southward to the seven islands of Izu, finally terminating in the Ogasawara group. In the northward arm there are, at the boundary between Shinano and Hida, Iwo-zan (10,074 ft.), Norikuradake (10,447), On-take (10,345). Yatsuga-take (9,675) stands at the boundary between Kai and Shinano. The upheavals of which we speak culminate at last in Mount Fuji, the heighest peak in Japan proper with an elevation of 12,450 *shaku* above the sea-level. Mount Fuji possesses the typical shape of a volcanic cone. Except in the height of the summer season the summit is covered with snow, and its majestic shape is a good landmark for navigators. It ought to be added that the northern arm contains in the central portion of Shinano an

extensive plateau with villages situated over 2,500 *shaku* above the sea-level Lake Suwa, which is situated here, is a big extinct crater, and is situated 2,637 *shaku* above the sea-level.

There are four subsidiary ranges in the central part of Honshū, of which the Hida, the Kiso, and the Akaishi ranges belong to the Kunglung system while the remaining Kwantō range forms part of the Saghalien system.

The Hida range originates in Mount Katakari which towers at the boundary between Etchū and Echigo. After forming Mount Renge (9,682) and Tateyama (9,372) it enters Hida, which it makes the mountainous province that it is. The Mozumi and Shikama Mines that are noted for their lead and silver are found in this range. The Kiso range, originates in Mount Komagatake (9,934) situated at the headwaters of the river Kiso and extends southward as far as the centre of the province of Mikawa. This range abounds in steep passes and precipitous gorges, as also in dense forests producing the famous "five timbers of Kiso." The Akaishi range starts with Akaiwa-san (10,206) which stands at the boundary between Shinano and Suruga. After running southward between the basins of the rivers Ōi and Tenryū, it sends up Omugen-zan (7,692) and Kuroboshidake (7,132), and ends at Akiwa-san and Dainichi-san. The Kwantō range forms the boundary of Shinano, Musashi, and Kōzuke, and runs in a south-easterly direction. Kobushi-dake (8,094) and Kumotori-san (6,603) are the highest peaks in this range. The two passes of Sasago (3,488) and Kobotoke occur in the ridge of the range.

The Kii range comprises the elevations found in Kii, Yamato and Shima. A chain of hills extending from Kōya and Hatenashi-dake (3,399) and the Yoshino group containing Takamiyama (4,422) and Odaigahara (5,295) may also be mentioned here. The forests of Yoshino are famous for their Yoshino cedars.

The Chūgoku range, part of the Kunglung system, enters Honshū from Kyūshū, and forms the boundary line between the Sanyō and San-in routes as also a watershed for these two regions, sending rivers, on the one hand, northward to the Sea of Japan and, on the other hand, southward to the Inland Sea. This range extends to the north of Lake Biwa, but its peaks are comparatively low.

Mount Jakuji (4,478) on the border of the three provinces of Suwo, Aki, and Iwami and Hiyei-zan and Hiradake (4,068) rising from the shores of the lake are the highest peaks in the range.

At the same time a chain of volcanic cones extends along the western part of Honshū, running almost parallel to the Kunglung range above mentioned. It starts at the northern extremity of the province of Nagato, produces Sambe-san (4,049) at the border of Iwami and Izumo and Daisen (6,194) at Hōki. It passes on to Echizen *via* Tajima, where it is represented by Dainichi-dake (5,979) situated at the border of Echizen and Hida, and finally ends with Haku-zan (8,712) in Kaga. This volcanic chain is therefore known by the name of the Haku-zan volcanic chain.

The mountain range of Shikoku is also a part of the Kunglung system and comes from Kyūshū. It starts at the western extremity of Shikoku with Jōgashiro-san (3,573). After sending up Mount Ishitsuchi (6,920) and some others at the border of Iyo and Tosa, and forming Isurugi-zan (7,398) at Awa, the highest peak in Shikoku, it passes on to the south of Tokushima, to join the Kii range across the narrow intervening arm of the sea. This range of Shikoku divides the island into two halves, northern and southern, and therefore serves as a watershed for the two divisions. The island has besides, a volcanic chain, also coming from Kyūshū.

Though constituting a link of the Kunglung system in Japan the mountain range of Paleozoic formation which is found in Kyūshū is comparatively low. At the west it rises on the shore of Higo, extends north-eastward, to send up Kunimi-dake and Obayama (6,550), till, coming to Saga, it crosses over to Shikoku. The volcanic chains, two in number, are more noteworthy, one of them being called the Kirishima-yama chain and the other the Aso-zan chain. The former originates at a considerable distance to the south, that is, in the sea off the coast of Formosa. After manifesting its presence on the small islands off Satsuma, and on Sakura-jima which is situated in the Bay of Kagoshima, it reaches Kirishima-yama (4,816), after which it disappears into the sea off Yatsushiro. The Aso chain consists of Tara-dake in the Hizen Peninsula, Onsen-dake (4,470) in the Shimabara Peninsula, and Aso-san (5,577). After proceeding to Bungo the chain disappears in the sea off Suwo.

Formosa is traversed from the central part to the southern by the Gyoku-san range which subdivides that section of the island into eastern and western halves. The former district has a coast line composed of abrupt cliffs while the latter, though on the whole hilly, is fringed by a fertile plain extending as far as the coast and with streams running through it. Gyoku-san or Mount Niitaka (sometimes also called Mount Morrison), which gives its name to this range, is the highest peak in the whole of Japan, rising as it does 14,355 *shaku* above the sea-level. Reflecting the rays of the sun this snowy mountain, for its summit is often covered by snow even in the hottest season, presents a sublime sight, whence it was formerly called the "Jewel Mount" by the Chinese. To the east of Hōzan stands Mount Katō (9,108) and to the north Mount Kantaban (9,956), the two peaks forming the extremities of the range. At the northern part of the island which is also hilly, no regular mountain system is found, excepting a little volcanic group of which Daiton-san is the most important peak.

Plains:—Owing to the hilly nature of the land, the plains in Japan mostly consist of mountain or river valleys, and also the slopes of mountains, so that, strictly speaking, they cannot be called plains at all, at least in the sense in which the term is understood in America, Australia or Siberia. Even if we do regard them as plains, we find them to be comparatively limited in extent compared with the plains of most other countries.

Hokkaidō has, however, four real plains, namely, the Ishikari Plain, the Tokachi Plain, the Teshiwo Plain, and the Kushiro Plain. Of these the first, which is the basin of the river Ishikari, is the most extensive occupying as it does an area of about 37 *ri* by 5 *ri*. The basin of the lower course of the river is extremely fertile, but that in the upper course is rather sandy and consequently less fertile. The second plain is the basin of the river Tokachi and measures about 20 *ri* both in length and breadth. The soil is fertile. The two rivers are partly navigable. The valley of the river Teshiwo forms the Teshiwo Plain, while the Kushiro Plain is situated in the southern part of the province of Kushiro. It is comparatively humid and not quite as fertile as the other three.

There are about eight plains worth mentioning in the island of

Honshū. Of these, two are in the northern part. One of them is formed by the basin of the river Kitakami and lies between the central Volcanic Range and the Kitakami Range; the other is the basin of the river Abukuma which lies between the central Volcanic Range and the Abukuma Range. The Kitakami Plain extends from the neighbourhood of the city of Morioka and extends southward as far as Sendai. The soil is generally fertile, especially in the lower part of the basin. The other extends over the two provinces of Iwaki and Iwashiro. It is liable to be flooded in the rainy season, but the soil is good. The two plains are collectively called the Plain of Mutsu and are traversed by the trunk line of the Nippon Railway.

The Aizu Plain, though well adapted for cultivation, is extremely limited in extent, it being practically the border of Lake Inawashiro. On the other hand the Mogami Plain, the valley of the river of the same name, is, though the cold is somewhat severe there in winter, an excellent agricultural district. Its resources are likely to prove far more valuable in future than at present when the Government Southern O-u Railway now extending from Fukushima to Funagata *via* Yonezawa shall have been completed.

The Plain of Echigo which measures about 40 *ri* from north to south and is watered by the rivers Shinano, Akano aud others, is the most important rice-producing district in the whole of Japan, the soil being well adapted for the cultivation of what we may well call the national cereal.

The Kwanto Plain is the widest alluvial plain in our country and is also one of the most prosperous. It extends over the four prefectures of Tokyo, Saitama, Chiba, Gumma and Ibaragi, and measures between 30 to 40 *ri* in length and breadth. This plain is watered by the navigable river Tone, besides possessing lagoons and ponds, and thus enjoys the greatest convenience in the matter of transportation, both by land and water. With the metropolis of the Empire and many other flourishing cities situated in it, this plain is a very important district both from the industrial and the agricultural points of view.

The Mino-Owari plain, the most important plain in the central part of Honshu, is the valley of the lower course of the river Kiso

and its tributaries. The land is rather low-lying and is therefore subject to the danger of inundation, but it is extremely fertile and is noted as a rice-producing district. Nagoya, the largest city in Japan next to the "three cities" is situated in this plain, while to the north lies the city of Gifu.

The Kinai plain, the basin of the rivers Yamato and Yodogawa and the district of Kyoto and Ōsaka, may be considered as the cradle of our old civilisation and therefore the centre of our ancient history. Kyoto with its natural beauty and with its great reputation of being the birth-place of our fine arts, and Ōsaka as the most important commercial mart and manufacturing city, in the Empire, are both of them too well known to need any disquisition here on their respective merits.

In the Sanyo and San-in districts there is, owing to the peculiar geographical formation of the land, no wide plain that deserves any extensive notice.

In Shikoku the valley of the river Yoshino and the stretch of flat land lying on the northern sea-coast of Sanuki may be mentioned, though both are limited in extent. The soil is good, and the Yoshino Plain is noted for the cultivation of the indigo-plant. The city of Tokushima is situated on the lower course of the above-mentioned river.

The Tsukushi Plain, the valley of the river Chikugo, is the most important plain in Kyūshū, on account of its extent, its fertility, and its large production of grain. The Chikuzen Plain which faces the Sea of Genkai is also noted for its agricultural products.

In the western section of Formosa a narrow strip of flat alluvial land extends along the coast from north to south, and the section stretching from Shoka to Tainan is most noted for the production of rice, sugar cane, and other crops. Colonization is most actively going on in this section.

Rivers, Lakes and Ponds:—Owing to the nature of our geographical formation and the consequent lack of any great distance from sea to sea the rivers found in our country are comparatively short and rapid. However, some of them are comparatively long with wide alluvial basins, and supply much convenience in the way of transportation, besides forming deltas at their mouths and hence giving

rise to prosperous cities. The case of Ōsaka at the lower course of the river Yodo is a typical example.

At the same time all those rivers are liable to inundations in times of heavy rainfalls, and to lay waste the surrounding districts. In fact during the five years beginning in the 29th year (1896), the damage inflicted by inundations is estimated at no less than 57,560,000 *yen* a year approximately.

Honshū enjoys more than any other part of the country the benefits to be derived from rivers as means of supplying irrigation and facilities of transportation. Of the rivers that take their rise in the watershed running across this region and empty themselves into the Pacific Ocean, the Kitakami and the Abukuma, already mentioned, are found in the northern section, the former measuring about 79 *ri* in length and the latter about 77. The Kitakami takes its rise in the back part of the province of Rikuchū, and sending off in Rikuzen a branch called the Oinami it empties itself at Ishinomaki into the Bay of Sendai. The Kitakami flowing from north to south across a plain is comparatively slow in current and supplies the people along its banks with the benefits of irrigation as well as of river traffic. The Abukuma takes its rise in Asahi-dake and Kinone-dake, Iwashiro, and flowing past the city of Fukushima empties itself into the Pacific Ocean at the boundary of Rikuzen. For about 35 *ri* in its lower course the river admits of river traffic conducted by boats.

The river Tone, otherwise called the Bandō Taro, rises in a hilly part of Kōzuke and runs for more than 70 *ri* through the extensive alluvial plain of Kwantō already described. Flowing southward it is joined by the river Watarase at Kurihashi, while at the town of Sekiyado it sends out a branch called the Yedogawa. Running further in a south-easterly direction, it enters the ocean at the harbor of Chōshi. It is connected with several lagoons as Kasumiga-ura and Kita-ura, and is a great highway of communication and transportation between Tokyo and the provinces of Chiba, Ibaragi and Saitama. This advantage has been greatly increased by the junction of the Tone and the Yedo river by a canal measuring 2 *ri* in length and 20 yards in breadth. The work was completed in the 23rd year (1890). The river Sumida, only 30 *ri* in length, gathers importance from the fact that in its lower course

it flows through Tokyo, thereby supplying to the city a great benefit for its traffic.

The river Fuji (38 *ri*) that empty itself into the Gulf of Suruga, and the Oi (46 *ri*) and the Tenryu (60 *ri*) are a source more of damage than of benefit owing to fact that they contain little water in ordinary times, and become suddenly swollen after rainfalls.

The river Kiso (46 *ri*) which rises in Nishi Chikuma, a district of Shinano, much resembles the Tone as to its basin and its traffic importance. Its principal tributaries are the river Hida in the upper part of its course and the river Ibi in the lower part of its course, the river finally emptying itself into the Bay of Atsuta. The sediments brought down by it form deltas, and indeed the fine net-work into which the lower course is subdivided has no parallel in Japan. As may be seen by a reference to historical records the formation of deltas in this river is extremely rapid.

The river Yodo is an outlet of Lake Biwa: the upper course is called Uji, and the lower part the Aji. It is a comparatively short river, extending only 20 *ri*, but from its situation it serves, together with the adjoining streams of Kitsu and Yamato, as a valuable factor in the prosperity for this district. The alluvial plain in which Osaka is situated was mainly formed by this river.

A short notice of the Kyoto canal which joins Lake Biwa with the river Kamo may be given here, it being the most important work of the kind recently undertaken in our country. It measures 6,107 *ken* with ramifications altogether measuring 1,620 *ken*. The canal serves for irrigation, as a highway for the transportation of goods and produce, and also for generating electricity for the city of Kyoto. It was constructed in the 23rd year (1890) at a cost of 1,200,000 *yen*.

The river Kii, called also in some places the Yoshino and in others the Kiino, comes from Mount Odaigahara and empties itself into the sea in the vicinity of the city of Wakayama. It measures 47 *ri* in length of which the lower 13 *ri* admits of being traversed by river craft.

The river basin being extremely limited both in the Sanyo and San-in districts, owing to the existence of a mountain ridge along their border line, the rivers in this region are short. The Gonogawa,

which comes from Aki and empties itself into the Sea of Japan in Iwami, is the longest of them, extending to the length of 50 *ri* of which 20 *ri* are navigated by river craft.

To continue the description of the rivers flowing into the Sea of Japan there are in Hokuriku the rivers Kuzuryu, Jintsū and Imizu. The Kuzuryu rises at the boundary of Mino and, after passing through the city of Fukui, flows into the sea at the seaport town of Mikuni. The Jintsū takes its rise at Mount Kawakami, Hida, and flows into the Bay of Toyama *via* the city of Toyama. The other river, which rises at Mount Dainichi, Hida, also flows into the same bay. The three rivers afford much convenience in the matter of irrigation and partly admit of river traffic. The Imizu, the longest of the three, measures 50 *ri*.

The river Shinano is the largest river in Honshū, its principal tributaries being the Sai-gawa and the Unuma-gawa. It comes from the eastern part of Shinano and, after flowing 100 *ri*, empties itself into the sea at the city of Niigata. Owing to the fact that a large number of small streams join it, the river is very wide, but being shallow it is only at the lower course north of Nagaoka that it admits of being navigated by small river steamers. The Onga-gawa flowing to the east of the other comes from Lake Inawashiro, Iwashiro. After running 57 *ri* it empties itself into the sea at Matsuga-saki, Echigo. This current is more rapid than the other, and only at its lower course can it admit of river traffic. These two rivers while watering the extensive plain of Echigo, supply it also with means of irrigation, carry its traffic, and yield it the fish which is so important an article of food in Japan, so that they may properly be regarded as forming a vital factor in the prosperity of the province.

The Mogami (62 *ri*) which takes its rise at Mount Danichi, Echigo, flows into the sea at the harbor of Sakata, after passing near the cities of Yonezawa and Yamagata and collecting a number of streams along the way. The alluvial plains on which the two cities are situated are the work of the river. However, the current is rapid, the Mogami being one of the three most rapid streams in our country, so that the river supplies only small convenience, if any at all, in the way of river traffic.

In Hokkaidō the existence of an elevation in the central part results in the sending of rivers in four directions, those flowing west being the Ishikari and the Teshiwo, to give only the principal streams, those flowing northward into the Sea of Okohotsk being the minor streams in Kitami, while the Kushiro and Tokachi rivers flow southeastward into the Pacific Ocean. Those in the provinces of Hidaka and Iburi run parallel to each other and southward into the Ocean.

The river Ishikari, the largest in the whole of Japan, and watering the wide plain of Ishikari, extends over 167 *ri*. As a large number of small streams join this lordly river, the Ishikari may be considered as conducting to a very large extent to the fertility and prosperity of the western plains of Hokkaidō. For about 50 *ri* in its lower course the river is navigable by river steamers. It rises in Mount Ishikari and joins the sea at the harbor of the same name. The river Uryū is its principal tributary. The Teshiwo, taking its rise in Mount Teshiwo that stands, on the boundary of Ishikari and Kitami, flows into the Sea of Japan after running northward for 74 *ri*. The current is less rapid than that of the Ishikari and is therefore more easily navigable. The river Kushiro comes from Lake Kushiro situated in the northern part of the province of the same name. After flowing southward it empties itself into the Ocean at the seaport town of Kushiro. The current is comparatively slow, and for 20 *ri* in its lower course it admits of being navigated by river steamers. The river Tokachi rises on the mount of the same name and, after running southward for an aggregate distance of 53 *ri*, it flows into the sea, one branch at Tokachi and the other at Otsu, as the river divides into two branches before it reaches the sea. Although the basin of the river is wide and sufficiently fertile, it is not yet so extensively opened as the plain of Ishikari.

As the area is limited and a mountain range occupies the central portion of the island, the rivers in Shikoku are separated into those flowing northward and those flowing southward. All of them are short, except the river Yoshino, otherwise called the Shikoku Shiro. It measures 43 *ri*, and waters the plain of Awa. It supplies the means of irrigation and of river traffic, only it often overflows the banks, in the

rainy season. The river takes its rise in the northern part of Tosa, and, flowing eastward, empties itself into the sea in the vicinity of the city of Tokushima.

In Kyūshū the mountain range of sedimentary formation and the two volcanic chains of Aso and Kirishima serve as starting points for rivers, and as the island generally abounds in dense forests which constantly feed the rivers, the volume of water in them is large and easily available for purposes of irrigation. However those that serve as highway of river traffic are few and far between, owing to the state of the current. The river Chikugo (35 *ri*) is the longest and rises in Mount Kokonoye, Bungo. After running in a north-easterly direction it passes the city of Kurume and enters the Sea of Ariyake at Yenotsu. This river waters the plain of Tsukushi, but is often unruly. The river Kuma, though only 25 *ri* in length, (or perhaps because of its shortness) is noted, together with the Fuji and the Mogami, as being the most rapid streams in Japan. However its lower course admits of being navigated by river craft for about 6 *ri*. The river rises at the boundary of Hyūga, and, after crossing the province of Higo, it empties itself into the sea at Yatsushiro. The river Sendai which takes its rise at the boundary of Hyūga and Higo flows through the northern part of Satsuma, and then enters the sea. Its valley is fertile and the lower course admits of river traffic for 16 *ri*.

The island of Formosa measuring more from north to south than from east to west, while the Gyoku-san range crosses through the centre, all the streams run from this watershed either to the east or to the west. They are all of them short. Some of the streams in the western half of the island are comparatively well supplied with water, but they are liable to be dried up in time of drought, while a heavy rainfall causes the streams to overflow their banks, and to send down volumes of sand to the mouths. The rivers of Formosa therefore present a peculiar feature of their own, compared with those in other places. Indeed the Chinese used to call them brooks and not as rivers.

Of these streams the Tansui is the largest in Northern Formosa. It collects the greater part of the water coming down from the elevations in this section. The two streams of Taikokan and Shintsu coming from the south joins the Tansui, while the Kelung stream comes from the vicinity of the city of Kelung. The Kelung is navigable by river steamers as far as Daitotei (Twatutia) situated about 5 *ri* from its mouth. The upper part of the Kelung partly admits of the use of native junks. The Tansui measures about 35 *ri* and empties itself into the Straits of Formosa. The Ge Tansui in the southern part of west Formosa is a stream that flows through the plain in the vicinity of Hōzan. Its basin being comparatively wide it also serves as means of irrigation. It measures 32 *ri* and the part of Tōko lies at its mouth. There is a stream running across the north of Kagi, but it is of little use for river traffic. Eastern Formosa being hilly and destitute of any wide plain has no streams worth mentioning, except, perhaps, the Dakusui which empties itself into the sea at Karenko. Its valley is fertile and it also serves the purpose of irrigation.

Lakes and ponds:—The lakes and ponds found in our country may be classified into three kinds, according to origin. The first kind comprises those that have been formed by the subsidence of the weak strata owing to seismic and volcanic disturbances. Lake Biwa is the most typical example of this kind. The second comprises those that occupy the craters of extinct volcanoes, and are therefore situated at a high altitude, while the last group are those that have been formed by the receding of the sea, which has, in its retreat, left water behind it in the depressions. The principal lakes belonging to the second group are Lake Suwa (2,637 *shaku*), Lake Ashi in Hakone (2,330), Lake Haruna, (3,431) on Mount Haruna, Lake Chūzenji (4,340) Nikkō, etc. Of the lakes or more properly ponds, swamps or lagoons belonging to the third group may be mentioned Kasumiga-ura, Kita-ura, Imba-numa, Naga-numa, etc, all of which are found in Hitachi and Shimōsa, and in the lower course of the river Tone. Hamanako in Tōtōmi, Hachirō-gata in Ugo, Fukushima-

gata in Echigo, Shimiji-ko in Izumo, Docha-ko and Shikotsu-ko in Iburi, Saruna-ko and Abashiri-ko in Kitami may be mentioned also. From the nature of their origin, all of them lie close to the shore and in flat plains.

Lake Biwa, which lies in the centre of the province of Omi, is the largest lake in Japan, measuring at its widest part 5 *ri* from east to west and 16 *ri* from north to south, with a circumference of 73 *ri*. Its area is 81 sq. *ri*. It is fed by a large number of small streams flowing into it, while its outlet is the river Seta which, under the name of the Ajigawa, flows into the Bay of Ōsaka. The cities of Ōtsu and Zeze which stand on the southern shore of the lake with the minor towns of Shiozu and Kaitsu on the opposite coast constitute a centre of collection and distribution of goods that are carried over the lake between the districts in the vicinity of Kyoto and Ōsaka and the districts of Hokuriku and Mino and Owari. However, as a highway of transportation the lake has lost much of its former value consequent on the laying of railways in its vicinity. The lake is also noted for its fine scenery, and the "eight scenes of Ōmi" together with the beauties of the island of Chikubu-shima that stands in the lake are widely celebrated.

Kasumiga-ura measures 36 *ri* in circumference and Kita-ura 15 *ri*. The towns lying on the shore of the first named lagoon are connected with Tokyo by steam service. Imba-numa is noted for its fishery and as serving purposes for irrigation to the neighbouring fields. There is a scheme afoot for constructing a canal between it and the Bay of Tokyo.

Coast-line and indentations :—The importance of the coast-line and its indentations as a factor in the civilization and prosperity of a country, gathers special force in connection with such a sea-girt country like Japan, to which those indentations may be considered as being the organs of respiration. It is exceedingly fortunate that our coast-line is comparatively well-indented, and therefore extends for a considerable length so that Japan may well be considered as enjoying a great natural gift in this respect and as being well

qualified for the carrying on of active commerce with the outside world.

The coast-line aggregates 4,432.84 *ri*, all the islands large and small constituting our country being taken into consideration. This compared to our whole area of 27,061.93 sq. *ri* corresponds to 1 *ri* of coast-line to every 3.64 sq. *ri*. If the ratio is taken for the larger islands alone, there is 1 *ri* of coast-line to every 4.79 sq. *ri*, the aggregate mileage of the coast-line and the area of those islands being 5,556.54 *ri* and 26,635.53 sq. *ri* respectively. The measurement for each of the larger islands is given below :—

Name of island.	Circumference *ri.*	Area per 1 *ri* coast line. *ri.*
Honshū	1,952.88	7.42
Shikoku	451.17	2.55
Kyūshū	861.18	2.68
Hokkaidō	583.33	8.66
Chishima (32 island)	613.21	1.68
Sado	53.30	1.57
Oki	74.70	0.56
Awaji	38.70	0.94
Iki	35.44	0.24
Tsushima	186.27	0.23
Loochu (55 islands)	315.06	0.50
Ogasawara (20 islands)	71.58	0.08
Formosa	299.72	7.52
The Pescadores	20.00	0.40
Total	5,556.54	4.79

It may be seen from this table that in length of coast-line as compared with area, Shikoku comes first, followed by Kyūshū, while the ratio is smallest in Hokkaidō, Formosa, and Honshū, speaking about the principal divisions alone. This explains why the coast of Shikoku and Kyūshū abound in good anchorages, and why in the islands of Hokkaidō and Formosa and on the Japan Sea coast of Honshū this advantage is less.

We shall now give brief descriptions of some of the good anchorages that are found in the main islands.

Beginning with the northern extremity of Honshū, there is the Gulf of Mutsu standing on the opposite side of the Tsugaru Straits from Hokodate of Hokkaido. This gulf is divided into two parts, the eastern section called the Bay of Nobechi and the western called the Bay of Aomori, the harbors of Nobechi and Aomori occupying the bottom of the bays of the same names. Of the two Aomori is far more important and prosperous than the other. It contains over 28,000 inhabitants and has a regular steamship service, run by the Nippon Yusen Kaisha, to and from the harbors of Muroran and Hakodate, while it is also the northern terminus of the Nippon Railway.

Between Aomori and along the east coast as far as Kinka-san, the coast is comparatively straight and only possesses anchorages of local importance. These are, beginning at the north, the port of Minato which is the terminus of the Shiriuchi Branch of the Nippon Railway; then Miyako and Kamaishi where the Yusen Kaisha's steamers make a regular call. After passing Kinka-san we have the Bay of Ishinomaki, containing three anchorages, the one at the east being Oginohama, that in the middle, Ishinomaki, and that at the western extremity being Kamaishi, the latter being connected by a branch line with the Nippon Railway. These three ports are centres of collection and distribution for goods coming from the wide plain of Kitakami or into it.

The only anchorage existing between the Ishinomaki Bay and the Bōsō Peninsula is Chōshi which lies at the mouth of the river Tone. Steamers regularly ply between it and the places situated along the Tone or on the shore of Kasumiga-ura and Kita-ura, while the Bōsō Railway connects the place with Tokyo. Moreover, as a line of the Nippon Railway passes Tsuchiura, a port on the shore of Kasumiga-ura, Choshi and its vicinity enjoy great facilities of communication.

The Bay of Tokyo that lies on the western coast of the Bōsō Peninsula is the most important inlet of Japan, commercially and otherwise. It is bounded on the east by the Peninsula of Awa, on the north by the shores of Kazusa and Shimōsa, while Tokyo and Yokohama with the places inter-

vening between them constitute the western boundary. The Peninsula of Misaki stands at the entrance of the Bay. From the shore of Kazusa and Shimōsa as far as Tokyo the water along the coast is comparatively shallow and cannot admit of the approach of a big vessel, but the inlets found south of Yokohama are in general good anchorages.

Yokohama lies 18 *ri* to the south of Tokyo and is situated on the western shore of the Tokyo Bay. It is a non-freezing port located at 35°26′ N. L. and 139°38′ E.L. In respect to the aggregate tonnage of the ships that enter it and to the volume of foreign trade, Yokohama stands foremost in the list of our trading ports. It is provided with all the necessary arrangements for overland and marine transportation and communications. Water-works, parks, hotels, Japanese and foreign banks, firms and companies of all sorts and all the other provisions for comfort and public convenience and utility are complete, while the harbor is provided with piers and breakwaters and is thronged with ships coming from all parts of Europe and America. The water-works supply those ships with wholesome water at a very low charge. Yokohama contains at present over 193,000 inhabitants or 31,700 families.

The Gulf of Sagami lies to the west of the Tokyo Bay, with the Peninsula of Izu forming its eastern boundary and Cape Ommaye of Tōtōmi forming the western. There is at the western corner of the Gulf the little harbor of Shimizu which supplies important shipping facilities to the vicinity. The fact that the Government Tōkaidō Railway passes along the coast serves to considerably increase the means of transportation and communications. The shores of the Gulf are noted for their fishery, while the narrow projection of Miho, which is seen to the best advantage from the harbor of Shimizu, is often referred to in poetry for its fine appearance.

Further westward there is no good anchorage as far as the Sea of Ise, which may be regarded as an extensive bay. It possesses along its coast quite a large number of ports. The ports of Handa and Taketoyo are situated on the eastern coast of the Peninsula of Chita which separates the two

eastern inlets of the Sea of Ise, namely the Bay of Atsumi and the Bay of Chita, from the sea proper. The most inland inlet of the sea is called the Bay of Atsuta and into this bay the river Kiso empties itself, as do also a large number of other streams, the result being the formation of several deltas. Atsuta is a prosperous little port situated at no great distance from the city of Nagoya. Its prosperity will be largely increased when the harbor works now going on shall have been completed. On the western shores of the Sea are the ports of Kuwana, Yokkaichi, and Tsu, of which Yokkaichi, being a special export port, is the most important. It is connected by a regular steamship service with Yokohama. The harbor of Toba in the province of Shima is situated at the western mouth of the sea. Its waters are very deep.

The Bay of Ōsaka which lies on the western side of the peninsula of Kii, is bounded on the west by the island of Awaji, and is encircled by the three provinces of Settsu, Kawachi, and Izumi. The city of Ōsaka, the Manchester of Japan, surpasses all other cities in the Empire for the prosperity of its trades and manufactures, while the city of Sakai that lies a short distance off may claim the name of a Japanese Sheffield, on account of its cutlery industry.

Kobe is situated on the north-eastern shore of the Bay, its exact location being 35°37′ N. L. and 135°24′ E. L. It is the terminus of the Government Tōkaidō Railway and the starting point of the Sanyo Railway, so that both in respect of land and marine communications, it is about as well provided as Yokohama, its only rival in the matter of foreign trade. In fact, so far as the volume of the import trade is concerned, Kobe even surpasses Yokohama, though in the gross volume of the trade, however, it still comes below the other city. The principal import goods are raw cotton, iron ware, sugar, cotton yarns, and rice, while rice, matches, fancy matting and tea constitute the principal exports. Kobe has a better anchorage, however, than Yokohama, its water being deep and permitting large ships to come near the shore where contrivances are provided for the loading and unloading

of goods. It may be added that all the conveniences of business and communication, as also those of comfort are as complete in Kobe as in Yokohama.

A narrow strip of sea extending westward from Kobe is the celebrated Inland Sea. It is bounded on the north by the Sanyodō districts and on the south by the island of Awaji and Shikoku. Besides abounding in inlets and harbors, and dotted by innumerable small islands, many of them covered by pine trees, this sea is generally tranquil all the year round. It unfolds new scenes and new wonders as the steamer threads its way between isles and round the bare or wooded curves so that a voyage through this far-famed sheet of water is delightful beyond description. The sea is subdivided into four sections, according to the divisions of the coast of Sanyodō, and the first of these, the "Harima-oki," is continuous to the Bay of Osaka, and washes the shores of Harima and Bizen. This section possesses the ports of Murotsu and Ushimado on the Sanyodō side and Takamatsu on the opposite side. The second section called "Bingo-oki" washes Bitchū and Bingo of Sanyodō and Sanuki and Iyo of Shikoku. Tamashima and Sasaoka of Bitchū; Tomotsu, Onomichi, and Mihara of Bingo; Marugame and Tadotsu of Sanuki, and Imaharu of Iyo are the ports lying on both sides of this section. The third section called "Akino-umi" washes the coast of Aki on the one hand and that of the north-western coast of Iyo on the other. It is distinguished from the other sections by a larger number of small islands, of which Itsukushima, popularly known as one of the "Three Sights of Japan," is the most noteworthy. On the Aki side lie the naval ports of Kure and the port of Ujina, while on the opposite coast are found Mitsugahama and Nagahama. The last section at the western extremity of the Inland Sea is "Suwo-nada," with Murotsu, Tokuyama and Mitajiri, and Shimonoseki as its ports, while the port of Moji in Bunzen, Kyūshū, is situated just at the mouth of the sea. Of these both from an historical and a commercial point of view, Shimonoseki is the most important.

The coast of Shikoku being described above, there remains now to be dealt with the Bay of Tosa. It is situated on the Pacific side of the island. The port of Uwajima on the western coast of Iyo is an anchorage of local importance.

Turning to the northern or the Japan Sea coast of Honshū, the condition of the coast is found to be considerably inferior so far as anchorages are concerned, the coast already described. Only on the coast of Hōki, Tango, Wakasa, Noto and Ugo are indentations of any importance to be found while, owing to the prevalence of high waves in winter, voyage along that coast in that season is risky. The inlet on the coast of Hōki is called the Bay of Mi-o. At the bottom of this inlet is the harbor of Sakaye, to the south is another harbor, that of Yonago. These are the only important anchorages in Sanin-dō.

The section of the sea bounded on one side by the projection of Echizen and on the other by that of Tango is the Bay of Wakasa. On the western side lies the port of Miyazu and the admiralty port of Maizuru while to the east, round Cope Tateiwa, is situated the Bay of Tsuruga with the harbor of the same name. This is the most important shipping centre in Hokuriku, and, connected by railway with the provinces in Kinai and Tōkaidō, it is a flourishing place for the collection and distribution of goods coming from the northern sea.

The eastern coast of the peninsula of Noto is, in contrast to the western, rich in indentations, of which the harbor of Nanao facing another harbor, that of Fushiki, situated to the south, may be mentioned. Besides being a regular port of call for the Yusen Kaisha's steamers, Nanao is also connected with Vladivostock by a regular steamship service, and with the provinces of Kinai and Tōkaidō by a railway. Fushiki with the cities of Takaoka and Toyama situated not far off, is an important shipping centre for this district.

The coast of Echigo has the harbor of Naoyetsu on the south and the harbor of Niigata on the north, the two cities being connected by a railway, while Naoyetsu is also connected with Tokyo by a Government line. Niigata is one of the

five open ports first opened to foreign trade. It is situated at at 35°39″ N. L. and 139°3′ E. L. But the defective anchorage of the harbor and the remoteness of the district have prevented Niigata from ever becoming a market for foreign trade, and its customs returns are eclipsed by those of other ports opened much later. Owing, however, to the vast output of cereals produced in the fertile plains of the province, Niigata enjoys great prosperity so far as the home trade is concerned.

Proceeding further northward along the coast, there are at the mouth of the river Mogami the harbor of Sakata, and a little further to the north of it the harbor of Nojiro, the latter of which is connected by railway with Aomori.

There are comparatively few indentations in Hokkaidō, owing to the nature of its coast-line; in fact there are only three, namely Volcanic Bay in the southern extremity, Ishikari Bay on the western coast and Nemuro Bay on the eastern.

Hakodate, one of the five open ports, is situated at 41°45′ N. L. and 140°43′ E. L. The basin of the harbor covers about 1 *ri* 6 *cho* north and south and 21 *cho* east and west, and, as the water is deep and sheltered on all sides by land, Hakodate supplies an excellent anchorage. The prosperity of the place increased apace with the progress of colonization in the island for whose products it serves as the most important outlet. The existence of water-works and the abundant supply, at cheap rates, of excellent Hokkaidō coal make this harbor an excellent calling place for steamers. However, owing to its remoteness from the centre of business and political activity, the volume of foreign trade here is not yet so high as in other places. It amounted to only 5,136,898 *yen* in the 33rd year (1900). The chief export goods are marine products, sulphur, etc. while iron ware, salted fish etc. constitute the principal import goods. With the increased utilization of the Siberian Railway as a medium of communication between Europe and Asia, Hakodate is sure to become an important calling place for steamers. At the end of the 31st year (1898), the city contained 78,040 inhabitants.

Otaru, situated in the Ishikari Bay, contained over 70,000 inhabitants at the end of the 34th year (1901), and constituting as it does the most important outlet for the marine, agricultural and mining products produced in the plains of Ishikari and Teshiwo whose coast supplies an excellent fishing ground for herring, its advance has been striking. It is one of the newly opened ports and it harbor-works will be completed a few years hence.

Nemuro and the harbor of Akkeshi on the coast of Kushiro, are, though regular calling places of the Yusen Kaisha's steamers, comparatively insignificant commercially on account of their remote situation. Muroran, situated at the eastern entrance of Volcanic Bay, is an excellent anchorage, and, together with Otaru, exports a large quantity of coal. It is connected with Sapporo and Otaru by a railway, while there is a regular steamship service between it and Hakodate. Travellers from Honshū who take the way of Aomori in going to Sapporo or Otaru generally go to Muroran *via* Hakodate.

The coast-line of Kyūshū is comparatively straight in the south-eastern part, but on the other hand the north-western part is well indented. Moji standing opposite Shimonoseki, a narrow arm of the sea separating, is the most flourishing port in the latter district. Its proximity to the principal coal-mines in Kyūshū and the vast export of coal from it has brought about this marked prosperity of the port. It contains over 36,000 inhabitants. The means of communication and transportation are very complete, the Sanyō Railway running between Shimonoseki and Kobe on the one hand, and the Kyūshū Railway starting on the other from this port of Moji. In the 32nd year (1899) it was included in the list of open ports, and already its volume of trade threatens to eclipse that of Nagasaki. The export of coal alone amounts to over 3,600,000 tons in a year. The little port of Wakamatsu situated close to it has suddenly sprung into importance owing to the establishment of the Government Iron Foundry in its neighbourhood.

On the northern coast of Kyūshū are found Hakata in Chikuzen, Karatsu in Hizen, and Izuhara in Tsushima, all of them ports of local importance. The admiralty port of Sasebo and the ancient treaty port of Nagasaki are found round the western extremity of Hizen, while Kuchinotsu lies at the southern end of the Peninsula of Shimabara.

Nagasaki is situated at 32°45′ N. L. and 130°29′ E. L. It was opened to foreign commerce no less than 332 years ago when a treaty of commerce was concluded for the first time with the Portuguese. From that time till the opening of the country Nagasaki was the only common ground on trade carried on between Japan and the outside world. Owing, however, to the transfer of the seat of commercial activity to Yokohama and Kobe, the prosperity of Nagasaki as a trading port has not of late made such a marked advance as that of other places. Still it is a regular calling port for steamers destined to or coming from the ports on the continent of Asia, the Philippines, Australia and Europe, and, being provided with railway connections, it enjoys great facilities in the matter of both maritime and overland transportation. The basin measures 28 *cho* long and 6 to 18 *cho* wide. It is sheltered on all sides by hills, and the water in the harbor is deep. All provisions for the convenience of ships, such as waterworks, a plentiful supply of coal, and a dockyard (the celebrated Mitsubishi Yard) are complete. In the 33rd year (1900) the volume of trade aggregated over 22 million *yen*, the principal goods imported being raw cotton, sugar, kerosene, etc., and the principal export goods being coal, rice, marine products, etc.

At the extremity of the promontory of Udo on the western coast of Higo is situated Misumi, and at the mouth of the river Kuma the harbor of Yatsushiro, the latter being the terminus of the Kyūshū Railway. At the mouth of the river Chikugo is situated Wakatsu and a little further off Omuda, both of which export the coal of the Miike mine and also other local products. At the southern extremity of Satsuma is found the harbor of Bonotsu, a regular station

for shipping connection between Kagoshima and Loochu. The Gulf of Kojima lies at the southern extremity of Kyūshū and contains at its bottom the harbor of Kagoshima, the most important anchorage in southern Kyūshū. The Gulf covers 20 *ri* north and south and 3 to 8 *ri* east and west. The water is deep and forms a good anchorage, but the means of communication with the rest of the island are not so complete as they will be shortly, when the Government Kagoshima Railway shall have been completed, to be connected with the Kyūshū Railway at Yatsushiro *via* Hitoyoshi. This line is now partly open to traffic.

In contrast to the north-western coast, the eastern coast is devoid of good anchorages. The ports of Ōita and Beppu situated at the bottom of Beppu Bay, and the port of Saganoseki situated a little further off to the south-east, and finally the port of Saiki situated still further to the south may be mentioned as anchorages of local importance. They are connected by a regular steamship service with Ōsaka, Kobe, Moji, etc. The only anchorages to be mentioned on the coast of Hyūga are Hosojima on the north and Yunotsu on the south, both being regular calling stations of the Ōsaka Shosen Kaisha's steamers.

Owing to the comparatively straight, unbroken outline of the coast of Formosa, there are only two harbors, Tansui and Kelung, on the northern coast, and two others, Anping and Takao, on the south. The former two lose much of their importance as anchorages owing to the fact that they are exposed to strong north-easterly winds in winter while the two southern ports are subject to the similar disadvantage of being exposed to south-westerly wind in summer.

Tansui is situated about 5 *ri* to the north of Taihoku and at the mouth of the river Tansui. As there are, however, a number of sand-bars in this harbor, steamers of deep draught cannot enter the basin unless at high-tide. The tea produced in the island is mostly shipped from Tansui harbor, which is therefore crowded with Chinese junks and steamers in the height of the tea season. Tansui is separated from Nagasaki by 640

miles and from Fuchow on the opposite coast of China by 137 miles. It contains about 10,000 inhabitants.

Kelung, about 9 *ri* to the north of Taihoku and 25 miles over-sea from Tansui, is the most important shipping station between the island and Japan proper. It is enclosed on three sides by hills, and the Formosan Government has started the work of sheltering the exposed side. Coal constitutes the principal item of export, the mineral being produced in the vicinity. The commercial activity of the city is however eclipsed by that of Daitotei (Twatutia) and Manko (Manka), in the suburbs of the city. The distance from Nagasaki is 637 miles, from Shanghai 776 miles, from Amoy 235 miles, and from Fuchow 150 miles. The city contains about 10,000 inhabitants.

Anping which ranks next to Tansui in the volume of trade is situated about 1 *ri* to the west of Tainan. Steamers have to anchor at a distance of about 1 *ri* from the mouth of the harbor, and they are often cut off from all communication with the land by the strong trade-wind that blows during the summer. A canal connects the harbor with Tainan. The staple export goods are camphor and sugar. Takao, about 10 *ri* to the south of Tainan and about 3 *ri* to the south-west of Hōzan, is the only harbor in Formosa which is sheltered from the trade-winds. The depth of the basin measures 5 to 7 fathoms. Sugar is the staple export, but the commercial prosperity of the place shows rather a retrogression than an advance.

Turning to the eastern coast, there is only one harbor, that of So-ō in the northern part, though it is shallow and is poor as an anchorage. The rest of the coast-line ends abruptly and supplies no good shelter for ships.

IV. GEOLOGICAL FORMATION.

General Remarks:—In general outline Japan may be considered to consist of three areas, one constituted by the stretch of

islands extending from Formosa to Kyūshū, the second by Japan proper extending from Kyūshū to Hokkaidō proper, and the third by the Kurile group. The islands composing Japan are apparently a part of the Fringing Mountain system which extends from east to west of the continent of Asia. As only a part of the system is left exposed above the sea, the geographical formation of the land is mountainous and comparatively destitute of level plains. Geologically the formation is even more complicated than that of the continent. Is may be classified as follows:—

1. Archean.—Composed of Gneiss system and Crystalline Schist system, both of which form the backbone of the land.
2. Paleozoic.—Composed of the upper and lower Chichibu systems.
3. Mesozoic.—Composed of various systems and mostly found along the Pacific shores.
4. Cainozoic.—Composed generally of the Tertiary and partly of the Quarterly system, both of which are rich in volcanic-tuft.
5. Old-Volcanic rocks.—Granite, diabase, etc.
6. Neo-Volcanic rocks.—Volcanic rocks.

The foregoing formations are found according to the following proportions:—

1.	Archean	3.40
2.	Paleozoic	12.74
3.	Mesozoic	7.25
4.	Cainozoic	46.87
5.	Old Volcanic rocks...	10.58
6.	Neo-Volcanic rocks...	19.16
		100

The relation between rock formations and natural resources will be briefly described below:—

Sedimentary rocks:—*a*. Archean.—Copper, gold, copper pyrites, building stone, also marble and precious stones. The copper mines of Besshi, Iyo, and of Hisane, Tōtōmi, are the principal deposits.

b. Paleozoic.—Gold, copper, lead, iron, manganese, limestone and

building stone. Gold ore is found in Hokkaidō and iron ore in the Akaya, Sen-nin and Kamaishi mines. The coal strata found in the Paleozoic system in the west are missing in Japan.

c. Mesozoic.—Antimony, silver, lead, coal, limestone, slate stone, building stone, etc.

d. Cainozoic.—Gold, mercury, silver, copper, lead iron, coals, petroleum, phosphorous ores, building and precious stones, etc.

Eruptive rocks:—*a.* Old-Volcanic rocks.—Auriferous veins, silver, copper, lead, building stone, decorative and precious stones, mineral springs, etc.

b. Neo-Volcanic rocks.—These are practically identical with the above, only they abound more in auriferous veins than the other. They are principally found in Sado, Ikuno, Ashiwo, In-nai, Ozaruzawa, Kosaka, etc. They are especially rich in copper pyrite ores.

Keramic earths:—The prosperity of the keramic industry for which Japan enjoys a great name is essentially due to the abundance of eruptive rocks, and to the presence of rocks recomposed out of igneous rocks into the Quarterly system, and also of felspar, quartz and lipalite. Clayey rocks formed by the decomposition of sedimentary rocks are relatively scarce compared with the other kinds of rocks. The material used by the keramists of Kyoto, Mino and Owari are different from those used by the people of Arita and Aizu, the one set of keramists using earths coming from granite and the other lipalite.

Pastures:—The soils of Paleozoic formation and those due to Neo-Volcanic eruption are suited for pastures. The eastern parts of Iwate-ken belong to the former kind while the south-eastern parts of Kyūshū and the southern parts of Hokkaidō belong to the latter.

Forests:—That the nature of the soil bears an important relation to the growth of trees and to their quality admits of no doubt. Of the noted forest districts in Japan, the soil of the Kiso forest is either of granite formation or of Paleozoic; the forests at Tsugaru of eruptive rocks and Paleozoic; the forests at Kii and Yamato, Paleozoic and porphyry, and the forests at Hyūga, Paleozoic.

Cultivated Fields:—The soils of cultivated fields are of course closely related to the rocks from which they are derived, the character of the soils being determined by the character of the

original rocks, as well as by the climate, situation, physical condition of the soil itself, and the comparative presence of fertilizers.

In the geological diagram given elsewhere the portion that is left uncolored belongs to Tertiary formation and represents the original rocks. The nature of the soils in the plains of Tokyo, Owari, Mino, Higo, Echigo, etc., may be ascertained by consulting the diagram.

V. CLIMATE.

General Remarks:—Owing to its geographical situation, Japan is situated both in the temperate and tropical zones, and the climate due to this position is influenced by the seas that girdle the country, the nature of the sea-currents that wash its coasts, the formation of mountains, the nature of the prevailing winds, etc.

Sea Currents:—Sea currents first demand our attention. Of these the "Kuroshiwo" or Black Current is the most important, for it is owing to its proximity that the climate of Japan, especially of the Pacific districts, is considerably moderated. It is so called from its color, which is deep indigo in fine weather and ashy pale on cloudy days. The Black Current takes its rise near the Equator, being produced by the Pacific Trade Wind. It is at the vicinity of the island of Boshi, the northernmost of the Philippine group, and at about 21° N. L. and 135° E. L. that the current, flowing westward to that place, turns northward, and thus begins to constitute the Japan Current. After running along the eastern coast of Formosa it is divided into two streams at about 23° N. L. and 126° E. L. The main current runs E. N. E. and along the southern coast of Kyūshū and Shikoku. Its velocity is extraordinary at this point and the speed with which it flows between the islands of Mikura and Hachijō, of the Izu group, is as much as 40 knots per hour. Proceeding northward, it turns in a north-easterly direction, to be again divided into two streams at about 38° N. L. The main current gradually bends more and more eastward, and finally reaches the vicinity of 160° E. L. On the other hand the branch current proceeds northward and finally reaches the Aleutian

archipelago and the Behring Sea, and is known by the name of the Kamchatka Current. Ships sailing from Yokohama to North America follow the route of this Black Current.

The branch current that is separated from the main current at 28° N. L. passes into the Sea of Japan *via* the arm of the sea separating Kyūshū and Tsushima. From about the central section of Honshū, this current comes closer to the shore of the island but on proceeding to 41° N. L. and 138° E. L. it is divided into two branches, one of which turns eastward through the Straits of Tsugaru and disappears near the eastern entrance of these straits, while the other proceeds northward and reaches the western coast of Hokkaidō, finally disappearing in the Sea of Okohotsk *via* the Strait of Soya.

There are, besides the above, two colder currents, the "Oyashiwo" and the Okohotsk Current, the former of which originates in the vicinity of the Peninsula of Kamchatka, and the other near the the mouth of the Amur river.

The Oyashiwo flows downward along the eastern coast of Hokkaidō and Honshū, and reaches as far as the vicinity of Cape Inuboye. This current is of a dark muddy color and can be distinguished at once from the Black Current. Its temperature is 5 to 8 degrees lower than that of the other.

The Okohotsk Current is divided into two streams, one called the Saghalien Current and the other the Liman Current. The former current is first driven northward by the force of the water coming out of the Amur, then courses round the northern tip of Saghalien, to flow down southward along its eastern coast, and finally to divide itself into two streams at about 45° N. L., one of which streams, after passing between the islands of Shikotan and Etrup, joins the Oyashiwo. The other proceeds westward, and enters the Sea of Japan *via* the Strait of Soya, to disappear there owing to its coming into contact with the warm current coming northward.

The Liman Current traverses the eastern coast of the continent of Asia. One branch of it disappears in the vicinity of Vladivostock, while the other proceeds southward through the centre of the Sea of Japan and comes as far south as the vicinity of

Hongkong *via* the Korean Straits, the Yellow Sea and the Eastern Sea of China. It is owing to the proximity of this cold current that the districts of China bordering on the two seas have comparatively severe winters.

Temperature:—Generally stated, the districts bordering on the Pacific differ very much in temperature from those facing the Sea of Japan. In the former the temperature is more moderate than in the other, and while it is warmer in winter it is cooler in summer. On the other hand, the districts along the Sea of Japan have rigorous winters and hot summers. The marked contrast in the general temperature of the two regions may be explained by the fact that while the Pacific shores are under the influence of the warm current coming from the sea and are protected by mountain ranges from the winds coming from the north-west, the districts along the Sea of Japan are directly exposed to the cold north-western winds coming from the wide plain of Siberia.

Both from its high latitude and also owing to the influence of the cold wind from Siberia, the temperature of Hokkaidō is low. In winter, and especially in the month of January, the thermometer is generally below zero, and in summer it reaches 21° in warmer districts.

In Kyūshū and Shikoku, on the other hand, the temperature stands high owing to their latitude, the influence of the warm air coming from the sea and also to the proximity of the Black Current. The average temperature in summer often exceeds 27° and in winter it rarely falls below 4°.

Formosa is warmer, and is in part the hottest place in Japan. Southern Formosa is situated, indeed, in the tropical zone, and the temperature does not fall below 15° even in winter, while it records 28 on an average in summer. The two extremes of temperature in Formosa are 35.6° and 4.8°

On comparing the temperature of Japan with that of European and American places situated in the same latitude, it is discovered that in winter our temperature is lower while the opposite is the case in summer. This remark does not, however, hold good with regard to the comparison between Japan and places on the continent of Asia. In fact the exact reverse is the truth, the summer being

warmer and the winter being cooler on the continent than in the case of Japan. To give a few examples, Kagoshima is situated nearly on the same latitude as Shanghai, but while its average temperature in July is about 2° below that of the other, it is over 3° higher in January. Akita and Peking are also on the same latitude, but the latter has an average yearly temperature of 11.8°, that of 0.46 in January, and of 26.2° in July, as against the corresponding figures of 10.3°, 2.5°, and 24.2° at Akita. In a similar way Fusan is about 2° higher in its yearly average than Numazu, but while in the latter the average in January is 4.9° it is 0.17 in the other. The contrast is more pronounced between Vladivostock and Sapporo situated nearly in the same latitude. The averages in summer do not differ much from each other, but in winter Sapporo is about 8° higher than the other.

This characteristic climatic feature at all those continental places is of course due to there being a greater difference between the temperature in summer and winter than is to be found in Japan where the temperature is moderated by the sea.

But when a comparison is made between Japan and North America, the temperature of the former is found to be colder in winter and warmer in summer than that of the latter. For instance though the temperature of Niigata and San Francisco, situated nearly on the same latitude, is about the same in spring and autumn, the temperature of Niigata is lower by about 8° in winter though higher by about 15° in summer. Soya and Vancouver have nearly the same temperature in summer and autumn, but during winter Soya is colder by 8° to 9° than the other. This comparatively lower temperature in Japan is due to the prevalence in winter of cold winds coming from Siberia.

Atmospheric pressure :—The average atmospheric pressure throughout Japan is 760 mm., the pressure being, as is generally the case, higher in winter and lower in summer. The difference between the winter pressure and the summer pressure decreases as we go from the east to the west, and while in Loochu and Formosa it is about 10 mm., it falls to about 5 in eastern Kyūshū, and down even to 4 in Hokkaidō. The usual position of the centres of low and high pressure varies according to

the seasons, partly owing to the geographical position of the country. In summer the centre of low atmospheric pressure lies in Korea and Siberia, while the corresponding centre of high pressure is found in the Pacific Ocean east of Japan. In the other three seasons the positions of low and high pressure centres are reversed, the former being in Korea and Siberia and the latter in Honshū or Hokkaidō or in the sea to the north-east of these islands.

Prevailing Winds:—The general condition of the atmospheric pressure being such, the winds prevailing in Japan naturally change according to places and seasons. During winter the prevailing wind is from the north-west and is superseded in spring by a wind from the south-west which in turn is replaced in summer by a south-westerly wind. This gradually shifts to the south-east, then to the north-east, and finally resumes in winter the original north-westerly direction. The prevalence of a north-easterly wind in winter is caused by the coming to the south-east of a current of air caused by the high pressure in northern Asia and the lower pressure existing in the Pacific. On the other hand the prevalence of a southerly wind in summer is the effect of the monsoon which originates in the China Sea and the Indian Ocean to neutralize the low pressure caused in summer on the continent. This wind, which bears moisture from the sea, causes rain as it reaches the land, and the heavy rain in the month of June is the effect of this wind.

The coming of a cold wind from the north-west in winter from Korea and Siberia has already been referred to, and the effect of this wind is most severely felt along the shores of Uzen and Ugo and the Hokuriku route which all lie in the direct path of the wind.

About the month of August or September when the monsoon is about to die away to be superseded by a colder wind, storms very frequently occur, taking the form of what are generally called typhoons.

The storms that occur in Japan may be divided into four kinds, according to their places of origin. One originates to the east of the Philippines or in the China Sea and reaches Houshū *via* the Sea of Japan, the Yellow Sea, and Korea. The second, also originating to the east of the Philippines, reaches Kyūshū *via* the Eastern Sea, but without entering the China Sea. Then at times the

storms come direct from the vicinity of the Philippines to the southern districts of Japan, while another kind of storm comes from southern Siberia, to sweep across Hokkaidō. The second and third kinds are the most common and also the severest.

These storms often attain a velocity of 17 miles an hour and, as they reach 32° N. L. and rage not unfrequently for over 48 hours at a time, they inflict severe damage on crops and property. As the storms occur generally in the flowering season of the earlier or later varieties of rice, the "210th day" or the "220th day" from the beginning of spring according to the lunar calender, it not infrequeutly happen that the crop is seriously affected.

In general the winds in Japan are stronger in spring and winter and weaker in the other seasons.

HUMIDITY:—Surrounded as it is by the sea, the degree of humidity is higher in Japan than in continental countries. The average record is 60/100 on an average. The atmosphere along the coast of Hokkaidō contains a larger quantity of moisture than that in any other part of the country. In the vicinity of Cape Erimo the yearly average is 87, while it reaches as high as 95 in July. On the other hand the interior of the island is exceedingly dry. In Honshū the districts facing the Sea of Japan, that is Uzen and Ugo and Hokuriku, have the highest record, the year's average being over 80. Formosa too has a similarly high record, not falling below 80° all the year round. In the Pescadores even 89 is reached in June.

On the other hand the disticts bordering on the Inland Sea, both in Honshū and Shikoku, have the lowest record, which often falls below 60.

RAINFALL:—Owing to the prevalence of moist winds coming from the sea and the existence of mountain ranges to condense that moisture, the rain-gauge records in Japan a height far above the average in other places.

In Honshū the districts bordering on the Sea of Japan have the highest record which generally exceeds 2,000 mm. in year, while Kanazawa has as much as 2,500. The north-eastern shore of Kii, Kōchi in Shikoku, Miyazaki and Kagoshima in Kyūshū, also have a high record. But Oshima in Kagoshima has the highest record, reaching as much as 3,300 mm. in a year.

On the other hand Soya in Hokkaidō has a rainfall of only 700 to 800 in a year, both on account of its latitude and of the comparative scarcity of evaporation from the sea. The districts bordering on the Inland Sea have also the lowest record, owing to the fact that the moisture coming both from the Pacific and the Sea of Japan is intercepted by the ranges of Shikoku on the one hand and by those running across the boundary between Sanyo and San-in on the other.

In general the rainiest season in Japan is, as already mentioned, the month of June. However this heavy rainfall at this particular season is very important for the cultivation of rice, this being the period of planting.

The fall of snow is heaviest in the Hokuriku districts, where even along the shores it is 3 to 4 *shaku* deep, while in the recesses of the hills the accumulations exceed even 10 or 20 *shaku* in depth. In Shikoku and Kyūshū snowfalls occur very rarely, and in the Pacific coast districts of Honshū they are also very rare. In Tokyo snow does not fall more than four or five times in a year, and does not exceed 5 or 6 *sun* in depth at the most.

CHAPTER II.—Population.

History—Number—Density—Urban and Rural Population—Increase of Urban and Rural Population—Households—Social Divisions—The Sexes—Classification as to Age—Marriages—Birth-rate—Death-rate—Normal Increase—Emigration.

I. HISTORY RELATING TO CENSUS RETURNS.

Census returns were made in Japan from ancient times, as it is recorded in authentic records that in the 12th year of the reign of the Emperor Sujin (86 B. C.) an Imperial Rescript was issued ordering the compilation of census returns with the object of levying taxes in kind and imposing labor for public service. Similar returns were also made during the reigns of the Emperors Yūryaku, Seinei, Kensō, and Kinmei (457–571 A. D.). It was, however, in the time of the Emperor Kōtoku that the census business was first arranged in a systematic manner. This Emperor ordered in the first year of the Taikwa era (645 A. D.) that regular census registers should be compiled, and that the compilation should be renewed in future every six years. This six year method was also provided in the Taihō code of laws, so-called because the first systematic codification of laws was undertaken in the era of Taihō (701–'3 A. D.). At any rate it was evidently during the reign of the Emperor Kōtoku that the census returns were for the first time regularly compiled. It is to be regretted that, owing to the remoteness of the period in question, no further particulars can be obtained about the returns of that time. The returns compiled during the reign of the Empress Shōtoku (724–748 A. D.) by the priest Gyoki in the course of his extended tour throughout the country and also those made by the priest Shuzen during the Eikan era (983–984 A. D.) of the Emperor Enyū, are also lost, for whatever record remains of those compilations

the entire population of the country was at these two periods. Even when the returns are entire they can at best give barely the approximate number of the inhabitants as that number was roughly calculated, evidently, from the number of villages, families, and adults whose services were available for public work.

With the advent of the Tokugawa Regency and especially with the advent of the halcyon days of profound peace that ensued subsequently, to the era of Genna (1615 A. D.), when social institutions became properly arranged, the Regency, actuated by various considerations financial and otherwise, began to perceive the necessity of inaugarating a proper system of census returns. The consequence was the issue of is fragmentary and can hardly serve the purpose of indicating what an order at various times ordering the compilation of census returns for the whole country. The returns took several different shapes, such as returns on arable land, returns on religion, and returns on personal identification. The returns made in the first year of Enkyo era (1744–'47 A. D.) put the entire population at 26,152,450. The figures fell to 25,917,830 in the returns compiled seven years later. The figures made out in the 6th year of Hōryaku (1751–'63 A. D.) were 26,061,830, while those in the 11th year of Bunsei (1828 A. D.) were over 27,200,000.

With the rehabilitation of the Imperial rêgime the work of compiling census returns was placed under the control of the *ci-devant* Department of Civil Affairs which attended to it with greater precision and energy, as may be seen in the following preamble of Notification No. 170 issued in April of the 4th year of Meiji (1871) by the then Daijōkan, now corresponding to the Cabinet, by which notification thirty three rules were provided for making census returns. The preamble stated:—"It is of the utmost importance in the administration affairs of a country to keep accurate account of the number of its families and individuals, for, unless this number is accurately known, the state can hardly attend to its primary duty of extending protection to its subjects. The subjects will also, on their part, enjoy peace and prosperity and can pursue their business unmolested only when they are under the protection of their government, so that should it ever happen that their domicile is absent from the official record, owing either to their own negligence or evasion or from an oversight

on the part of the government officials, those people will be practically non-existent in the eyes of the government and will therefore be excluded from the enjoyment of the protection universally extended by the government to its people.

"Lack of uniformity in the local administration from about the time of the Middle Ages has, among other irregularities for which it is accountable, reduced the business of keeping personal registers to a state of disorder; people were allowed to remove their abodes without giving notice to the authorities, and even to evade with impunity the duty of registering themselves in the census record. Accustomed for ages to these irregular practices, people are prone to regard the duty of registration with perfect indifference. It was in view of this circumstance that the rules of keeping census records throughout the country have now been provided, and that the local authorities and the people are hereby enjoined to duly regard the the points herein set forth and to carefully attend to them."

The Government of the time drew, in that way, the attention both of the local authorities and of the people to the great importance of the census, and warned them against faults of omission and commission in the entries of the census registers.

With the abolition in that year of the Department of Civil Affairs, the census business was transferred to the Census Record Bureau of the Department of Finance, to be again transferred in January of the 7th year of Meiji (1874) to the control of the Home Office which subsequently took charge of personal registration as well as of census-taking, till the 31st of Meiji (1898), when the Law of Personal Registration was put in force, when all matters relating to registration were entrusted to the Department of Justice while matters connected with census-taking were placed under the control of the Statistical Bureau of the Cabinet.

II. NUMBER OF POPULATION.

In surveying the movement of the population in Japan during the 28 years beginning with the 5th year (1872) and ending with the 32nd year (1899), it is found that the population that stood

at 33 million souls approximately from the 5th to the 8th year inclusive (1875), grew in the 9th year to 34 millions approximately; then to 35 millions in the 12th year (1879), to 36 millions in the 14th year (1881), and to over 37 millions in the 16 year (1883), all in round numbers. The figures for the 22nd year (1889) were over 40 millions, while the corresponding figures in the 30th year (1897), that is eight years later, were 43 millions approximately. In the 32nd year (1899) the number stood at 44,260,604 precisely, an increase of 11,149,779 on that of the 5th year, the yearly rate of increase corresponding to 412,955 on an average. Reserving all particulars about the rate of increase and so forth to be dealt with in special paragraphs, the yearly gross figures are given as follows:—

REGISTERED POPULATION OF JAPAN.

Year.	Males.	Females.	Total.
5th Meiji	16,796,158	16,314 667	33,110,825
6th	16,891,729	16,408,946	33,300,675
7th	17,050,521	16,575,157	33,625,678
8th	17,250,420	16,747,029	33,997,449
9th	17,419 785	16,918,619	34,338,404
10th	No returns.	No returns.	No returns.
11th	No returns.	No returns.	No returns.
12th	18,140,822	17,627,762	35,768,584
13th	18,208,890	17,720,170	35,929,060
14th	18 423,274	17,935,720	36,358.994
15th	18,598,998	18,101,120	36,700,118
16th	18,755,242	18,262,060	37,017,302
17th	18,954,770	18,496 994	37,451,764
18th	19,157,877	18,711,110	37,868 987
19th	19,451,491	19,055,686	38,507,177
20th	19,731,732	19,337,959	39,069,691
21st	20,008,445	19,598,789	39,607,234
22nd	20,246,336	19,825,684	40,072,020
23rd	20,431,097	20,022 364	40,453,461
24th	20.563,416	20,155,261	40,718,677
25th	20,752,366	20,337,574	41,089 940
26th	20,906,464	20,481,848	41 388,313
27th	21,122,899	20 690 316	41,813,215
28th	21,345,750	20,924,870	42,270,620
29th	21,561 023	21,147,241	42,708,264
30th	21,823,651	21,405 212	43,228,863
31st	22,073 896	21,689,257	43.763,153
32nd	22,329 925	21,930,681	44,260,604

Note:—The returns for the year 5th were made on January 29th, those for the 6th to 18th year on January 1st, and those from the 19th to the 32nd year on December 31st. There is a difference of two between the total aggregate of the male and female population for the 32nd year, because there were two cases of death in which the sex of the party who died was unknown.

The population of the island of Formosa and of the group of Pescadores which were formally ceded to Japan by China by the Treaty of Peace promulgated on May 10th, 28th year of Meiji (May 10th, 1895) is as follows, reckoning only those who had domicile in the ceded islands:—

	Males.	Females.	Total.
30th year of Meiji (1897)	1,316,875	1,138,478	2,455,353
31st „ „ „ (1898)	1,307,428	1,157,539	2,464 967
32nd „ „ „ (1899)	1,424,037	1,197,121	2,621,158

When all the people actually residing there are included, the figures become 2,797,543 (including 16,321 people from Japan proper) for the 30th year, 2,690,096 (25,585 from Japan proper) for the 31st year, and 2,758,161 (33,120 from Japan proper) for the 32nd year.

III. DENSITY OF POPULATION.

The total area of the Empire (Formosa excluded) being 24,794.36 sq. *ri* and the actual population, at the end of the 31st year (1898), 45,402,359, the density of the population per sq. *ri* amounts to 1,831. Taking the relative rate of density in the six main divisions of the country, it is found that the Western section of Honshū with 2,945 comes at the head of the list, followed by 2,880 in the middle section of Honshū, 2,542 Shikoku, 2,464 in Kyūshū, 1,309 in the Northern section of Honshū. Hokkaidō with only 141 comes at the bottom of the list.

The greater density in the Western section of Honshū is attributable to the fact that it contains the districts of Kinai where in one place or another, the successive Emperors that ascended the Throne fixed their capital during a period of no less than 2,527 years, and where therefore are found many flourishing cities and towns. The presence of such large cities as Tokyo, Yokohama,

and Nagoya accounts for the density of the Middle section. In short the presence of 1,399 to 2,945 people per sq. *ri* in the five sections above enumerated is primarily due to the facilities of communication and to the prosperity of trade and industry in those regions, while the scarcity of population in Hokkaidō is due to its remoteness and severe climate, and especially to the fact that comparatively a short space of time has elapsed since the work of colonization was started there. The soil being, however, well adapted for agriculture and stock-breeding while the rivers and shores are rich in marine wealth, Hokkaidō will become, at no distant date, far more densely populated, receiving as it does, at the present moment from the rest of the country from 40,000 to 60,000 per annum. We give below a table showing the density of the population in each section.

Section.	Area (sq. *ri*).	Actual Pop.	Pop. per sq. *ri*.
Middle Honshū	6,145.99	17,708,223	2 880
Northern Honshū	5,071.82	6,639,372	1,309
Western Honshū	3,472.72	10,226,539	2.945
Shikoku	1,180 67	3 000,794	2'542
Kyūshū	2,827.80	6,967,897	2 464
Hokkaidō	6,095.36	859 534	141
Total	24,794.36	45,402.359	1,831

Note :—The Middle section comprises the 17 prefectures of Tokyo, Kanagawa, Saitama, Chiba, Ibaragi, Tochigi, Gumma, Nagano, Yamanashi, Shizuoka, Aichi, Miye, Gifu, Shiga, Fukui, Ishikawa, Toyama; the Northern section camprises the 7 prefectures of Niigata, Fukushima, Miyagi, Yamagata, Akita, Iwate, Aomori; the Western section consists of Kyoto, Ōsaka, Nara, Wakayama, Hyogo Okayama, Hiroshima, Yamaguchi, Shimane, Tottori; Shikoku comprises Tokushima, Kagawa, Ehime and Kōchi; Kyūshū comprises Nagasaki, Saga, Fukuoka, Kumamoto, Ōita, Miyazaki, Kagoshima, and Okinawa; Hokkaidō covers all the districts under its jurisdiction. This classification holds good for all the tables to be given hereafter.

To enumerate those prefectures that contain over 3,000 inhabitants per sq. *ri*, we have :—

Prefecture.	Area. sq. *ri*.	Actual population.	Population per sq. *ri*.
Tokyo	125.80	2,101,102	16,702
Ōsaka	115.72	1,600,923	13,834
Kagawa	113.50	694,280	6,117
Kanagawa	155.67	926,884	5,954
Aichi	312.78	1,639,611	5,242
Fukuoka...	317.81	1,425,625	4,486

Prefecture.	Area. sq. *ri.*	Actual population.	Population per sq. *ri.*
Saitama	265 99	1,175,697	4,420
Chiba	326.15	1,275,376	3,910
Saga	160.08	618,679	3,865
Nagasaki	235.15	902,455	5,838
Kyoto	296.55	997,488	3,364
Hyogo	556.68	1,717,634	3,085

The prefectures mentioned above are the most densely populated prefectures in the country, the density in the rest ranging from 1,000 to 3,000, with the exception of Miyazaki which contains 953 and Iwate which has 799. Hokkaidō, as described above, contains only 141, being the most thinly populated of any.

The density of the actual population in Formosa and the Pescadores is as follows:—

	Area. sq. *ri.*	At the end of 32nd year.	Density per sq. ri.
Formosa	2,253.24	2,705,905	1,245
The Pescadores	14.33	52,256	3,647

IV. URBAN AND RURAL POPULATION.

Regarding a place where over 3,000 inhabitants form one community as an urban section, the urban population at the end of the 31st year (1898) aggregated 10,702,232, the remaining 34,700,127 residing in rural sections. According to the foregoing, the urban population amounted to 24 out of every 100 and the rural population to 76. The particulars are given below.

Section.	Urban.	Rural.	Percentage. Urban.	Rural.
Middle	5,007,323	12,700,900	28	72
Northern	1,381,301	5,258,071	21	79
Western	2,709,596	7,516,943	26	74
Shikoku	418,720	2,582,074	14	86
Kyūshū	944,910	6,022,987	14	86
Hokkaidō	240,382	619,152	28	72
Total	10,702,232	34,700,127	24	76

Note:—The urban population consists of the inhabitants of the *Shi* (cities) established after the institution of the Local Civic Corporation System and those of the *Cho* (towns) containing not less than 3,000 inhabitants. The two urban districts of Naha and Shuri in Okinawa and the districts of Hakodate, Sapporo, Otaru Esashi and Fukuyama, all of which contained more than 3,000, have also been included in the total. The population other than urban was all included in the rural population.

The population of cities and towns containing not less than 10,000 aggregated 5,500,000 in the 23rd year. In the 27th year it grew to over 6,080,000 and in the 31st year to over 7,130,000. Then that of rural districts which stood at 35,000,000 approximately in the 23rd year, grew to over 36,000,000 in the 26th, and to over 38,000,600 in the 31st. The movement of the two sections of the population during the 9 years ended 31st is shown below :—

	Urban districts of over 10,000 Pop.		Rural districts of less than 10,000 Pop.	
Year.	Actual Pop.	Increase over pre. year per 1,000 Pop.	Actual Pop.	Increase over per. year per 1,000 Pop.
23rd...	... 5,504,059	—	35,464,776	—
24th ..	... 5,657,493	27.88	35,611,239	4.13
25th...	... 5,768,228	19.57	35,928 619	8.91
26th...	... 5 927,699	27.65	36,133,277	5.70
27th...	... 6,086,310	26.76	36 344 675	5.85
28th...	... 6,210,801	20.45	36,837,425	13.56
29th...	... 6,409,736	32.03	37,090,097	6-86
30th...	... 6,772,042	56.52	37,206,453	3.14
31st ...	... 7,136,691	53 85	38,265,668	28.47

To review the movement of the two classes of population, the rate of increase of the urban population is far more marked than that of the others, for while the rate in the 24th year compared with that of the preceding year was 27.88 per 1,000 in the urban districts, it was only 4.13 in the rural. In the 28th year the rate in urban districts was 20.45 and in rural districts 13.56, and lastly in the 31st year the rate was 53.85 and 28.47 in the respective districts. On the whole the rate during the 9 years under review was about 33 in the urban districts against 10 in the rural, and this marked increase in the urban population is evidently attributable to the rise of trade and industry in cities and the consequent emigration of the rural population to the urban districts.

V. INCREASE OF URBAN POPULATION.

The number of cities and towns containing not less than 10,000 inhabitants was 122 in the 20th year. That number increased to 152 in the 25th year and to 162 in the 31st. The marked

increase in the number in the 25th year was due to the amalgamation of villages with towns or cities on the occasion of the institution of the Local Civic Corporation System, as also to the settlement of the people from the villages in the urban districts. The movement of the urban districts as to population from the 19th year to the 31st is as follows:—

Year.	Over 10,000	Over 20,000	Over 50,000	Over 100,000	Over 200,000	Over 300,000	Over 400,000	Over 500,000	Total.
19th	69	36	8	1	1	1	0	1	117
20th	69	40	7	3	1	0	1	1	122
25th	89	45	12	3	0	1	1	1	153
30th	88	52	14	3	1	1	0	2	161
31st	84	57	13	3	2	1	0	2	162

The forgoing urban districts being distributed among the main local divisions, the figures at the end of the 31st year stood thus:—

Section.	Over 10,000	Over 20,000	Over 50,000	Over 100,000	Over 200,000	Over 300,000	Over 400,000	Over 500,000	Total.
Middle ...	45	26	2	1	1	0	0	1	76
Northern ...	15	11	2	0	0	0	0	0	28
Western ...	11	9	3	1	0	1	0	1	27
Shikoku ...	5	4	1	0	1	0	0	0	10
Kyūshū ...	8	6	3	1	0	0	0	0	18
Hokkaidō ...	0	1	2	0	0	0	0	0	3
Total ...	84	57	13	3	2	1	0	2	162

Next the population of those urban districts containing not less than 50,000 inhabitants at the end of the 31st year was as follows:—

ACTUAL POPULATION.

Tokyo	1,440,121	Ōsaka	821,235
Kyoto	353,139	Nagoya	244,145
Kobe	215,780	Yokohama ...	193,762
Hiroshima ...	122,306	Nagasaki... ...	107,422
Kanazawa ...	83,662	Sendai	83,325
Hakodate ...	78,040	Fukuoka... ...	66,190
Wakayama ...	63,667	Tokushima ...	61,501
Kumamoto ...	61,463	Toyama	59,558
Okayama ...	58,025	Otaru	56,961
Kagoshima ...	53,481	Niigata	53,366
Sakai	50,203		

At the end of the 31st year the number of rural communities was 13,230, distributed as follows:

Middle Section	4,821
Northern „	2,163
Western „	2,982
Shikoku	781
Kyūshū	1,920
Hokkaidō	603
Total	13,270

Note:—The rural communities represented above comprise those "Son" (villages) in the Local Civic Corporation System, and also those "Cho" (towns) that contained less than 3,000, inhabitants, besides the rural communities of Okinawa known by the special name of "Makiri."

VI. RELATIVE NUMBER OF PEOPLE IN HOUSEHOLD.

The number of households, at the end of the 31st year was 8,182 017 against the population of 45,402,359, the number of people per household therefore amounted to 5.55. The relative rate in the local divisions is as follows:—

Section.	Actual No. of households.	Actual Pop.	Number per household.
Middle...	3,160 800	17,708,223	5.60
Northern	1,016,131	6,639,372	6.53
Western	1,994,348	10,226,539	5.13
Shikoku	570,246	3,000,794	5 26
Kyūshū	1,266,697	6,967,897	5.51
Hokkaidō	173,795	859,534	4.95
Total	8,182,017	45,402,359	5.55

Note:—In the above and in the following two tables, the number of households does not coincide with the number of heads of families because there are sometimes more than one household under single head.

The number of people per household in the urban districts was 4.99, the actual number of households and of the population being 2,145,316 and 10,702,232 respectively:—

Section.	Actual No. of household.	Actual No. of Pop.	People per household.
Middle...	1,021,723	5,007,323	4.90
Northern	237,729	1,381,301	5.81
Western	581,863	2,709,596	4.66
Shikoku	89,021	418,720	4.70
Kyūshū	168,811	944,910	5.60
Hokkaidō	46,169	240,382	5.21
Total	2,145,316	10 702,232	4.99

The number of people in each household in the rural districts was 5.75, the actual number of households and of population being 6,036,701 and 34,700,127 respectively :—

Section.	Actual No. of household	Actual Pop.	Pop. per household.
Middle	2,139,077	12,700,900	5.94
Northern	778,402	5,258.071	6.75
Western	1.412 485	7,516,943	5.32
Shikoku	481,225	2 582,074	5·37
Kyūshū	1.097.886	6,022,987	5.49
Hokkaidō	127,626	619,152	4.85
Total	6,037.701	34,700,127	5.75

It will be seen from the foregoing tables that the average number of people per household in the urban districts was 4.99 as against 5.75 in the rural, and that while the number per household was larger in the rural districts than the urban, in the Middle, Northern and Western Sections of Honshu and in Shikoku, the exact reverse was the case in Kyūshū and Hokkaidō.

VII. SOCIAL CLASSES.

Our people are divided into four social classes, namely the members of the Imperial family, Peers, "Shizoku" and "Heimin." Of the four classes the first being the descendants of one or other of the Emperors and therefore of Princes or Princesse of the Blood, stand at the head of all the classes. The Peers consists of those courtiers who have inherited one important post or another at the court, of the former feudal lords, and of those whose distinguished services have obtained for them a patent of nobility. The Peers are

of five grades, namely Prince, Marquis, Count, Viscount and Baron, and they enjoy special privileges both politically and socially. The Shizoku are the samurai of oldern days, but at present this title merely serves to indicate the former profession of the holder's family with no privilege, such as existed formerly, attached to it. The rest are Heimin or commoners, whose standing doos not differ at all from that of the Shizoku. The numerical strength of the three classes excepting the highest from the 12th (1879) to the 31st year (1898) is as follows:—

Year.	Peers.		Shizoku.		Heimin.	
	Heads of Families.	Households.	Heads of Families.	Households.	Heads of Families.	Households.
12th	464	2,661	404,389	1,428,968	7,032,893	26,409,592
15th	487	2,717	425,881	1,505,943	7,258,608	37,501,915
20th	588	2,228	425,960	1,528,709	7,629,966	29,475,125
25th	600	3,253	430,135	1,584,171	7,841,550	31,224,647
30th	695	3,828	437,556	1,651,578	8,043,187	33,087,554
31st	706	3,845	439,387	1,666,311	8,180,112	33,468,054

VIII. THE SEXES.

In comparing the number of males and females, the former are found to exceed the latter, the ratio of males to females ranging between 101.77 and 102.96 to 100 from the 5th to the 33rd years.

Year.	Males.	Females.	No. of Males per 100 Females.
5th	16,796,158	16,314,667	102.95
9th	17,419,785	16,918,619	102.96
15th	18,598,998	18,101,120	102.75
20th	19,731,732	19,337,959	102.04
25th	20,752,366	20,337,574	102.04
30th	21,823,651	21,405,212	101.95
31st	22,073,896	21,689,257	101.77
32nd	22,329,925	21,930,681	101.82

This excess of males over females holds good in the stages of childhood (below 15 years) and adult life (16 to 65 years), but in the last stage of old age (66 years and over) the relation is reversed. These relations are demonstrated in the following table.

Year.	No. of Males to every 100 Females.		
	Childhood.	Adult.	Old age.
17th	102.19	104.49	84.00
20th	102.27	103.89	82.33
25th	102.18	103.88	82.89
30th	102.41	103.57	83.53
31st	102.29	103.43	82.35

In examining the demarkation line as to the age when the number of females begins to exceed that of males, it is found that, according to the returns from the 19 to the 31st year, this demarkation occurs at the age of 58 to 61, as follows:—

Year.	Females are in excess at the age of	Males are in excess at the age of
19th	58 and over	57 and under
20th	59 „ „	59 „ „
21st	60 „ „	59 „ „
22nd	61 „ „	60 „ „
23rd	58 „ „	57 „ „
24th	59 „ „	58 „ „
25th	58 „ „	57 „ „
26th	59 „ „	58 „ „
27th	60 „ „	59 „ „
28th	60 „ „	59 „ „
29th	60 „ „	59 „ „
30th	61 „ „	60 „ „
31st	61 „ „	60 „ „

IX. POPULATION AS CLASSIFIED BY AGE.

In classifying the population by age there are many points to be considered, such as ages of efficient labor, non-efficient labor, conscription service, voting, school attendance, marriage, procreation, longevity, etc., but here only the three subjects of ages of efficient labor and of non-efficient labor, of procreation and of conscription service shall be dealt with.

Ages of efficient labor and non-efficient labor:—In general our people cannot engage in self-supporting work until they reach the age of about 15, so that the years below 15 must be regarded as age of non-efficient labor, the years between

16 and 65 as ages of efficient labor, and the years above 66 as ages of non-efficient labor. The population of the efficient and non-efficient labor as based on the foregoing standard is shown below :—

Year.	Below 15.	16 to 65.	above 66.
17th	11,842,565	23,458,278	2,142,236
20th	13,087,582	23,826,408	2,152,303
25th	13,702,107	25,120,236	2,265,046
30th	14,195,521	26,602,214	2,429,097
31st	14,366,923	26,989,196	2,404,700

In the foregoing three classes of population shown in percentage, those of non-efficient labor on account of childhood constitute in general 33 out of every 100, those of similar non-efficioency on account of declining age 6, and those of efficient labor the remaining 61. In other words, of every 100 people 61 give support to thers and 39 receive support from others. These relations are demonstrated as follows :—

Year.	Below 15 years.	16 to 65 years.	Above 66 years.	Total.
17th	31	63	6	100
20th	33	61	6	100
25th	33	61	6	100
30th	33	61	6	100
31st	33	62	5	100

AGE OF PROCREATION :—Women are not allowed in our Civil Code to marry until they reach full 15 years of age, and hence the age of procreation may be considered as beginning at that age. The years at which sterility commences are not uniform according to persons, the period arriving before 40 in some and after 50 in others. However, the average may be taken as 45 years, so that the period between 15 and 45 years may be regarded as the period of procreation.

According to that standard the child-bearing portion and the non-procreative portion amount to 44 and 56 respectively, as shown below.

Year.	Women between 15 and 45.	Women below 15 or above 46.	Pro-creative.	Non-Procreative.
20th	8,498,070	10,838,583	44	56
25th	8,986,358	11,350,172	44	56
30th	9,517,051	11,887,385	44	56
31st	9,661,749	12,026,561	45	55

AGES OF CONSCRIPTION SERVICE:—The male subjects of the Empire are eligible for military service from full 17 to full 40 years. At the end of the 31st year there were 8,034,098 males of those ages, corresponding to 36 out of every 100 males,as below.

Year.	Population available for service.	Per 100 males.
20th	7,220,932	36.60
25th	7,477,507	36.03
30th	7,914,181	36.26
31st	8,034,098	36.40

X. MARRIAGE.

BEFORE giving any data about marriage a brief description of the legislation enacted in connection with marriage may be given here. The marriage age as provided by the Civil Code, begins at full 17 years with males and full 15 with females, and in making the marriage contract the consent of parents or of those who legally represent them is necessary. However, this consent is dispensed with in the case of those males who have reached the full age of 30 or in that of females who have reached 25. The same Code prohibits polygamy under pain of criminal punishment, the system of monogamy having been legally established more than 10 centuries ago. Women are similarly forbidden to make any polyandrous contracts.

The number of marriage contracts during the ten years ending with the 32nd year (1900) was 372,102 which corresponds to 8.82 per every 10,000 people, this rate being shown in the following table.

Year.	Number of marriage contracts.	Per 100 people.
16th	337,456	9.01
20th	334,149	8.55
25th	349,489	8.51
26th	358,389	8.66
27th	361,319	8.64
28th	365,633	8.65
29th	501,777	11.75
30th	365,207	8.45
31st	471,298	10.77
32nd	297,117	6.71

Note:—The number of contracts for the 32nd year covers only those that were reported during that year, those that were reported after that year being excluded. This remark applies also to the tables of birth and death to be mentioned subsequently.

The number of married couples subsequent to the 19th year are as follows:—

	No. of married couples.	Per 1,000 people.
At the end of the 19th year	7,289,001	189.29
„ „ 20th „	7,346,670	188.04
„ „ 25th „	7,561,900	184.03
„ „ 30th „	7,892,073	182.56
„ „ 31st „	7,979,383	182.34

As shown in the table, 182.34 to 189.29 out of every 1,000 people are married couples so that in every 1,000 of the population there are 364.68 to 378.58 married people, the rest being single. This rate is a fairly good record compared with the data in other countries, demonstrating to some extent the easy condition of living in Japan and the domestic stability that obtains there.

XI. BIRTHS.

During the ten years ended the 32nd year, inclusive, the average births numbered 1,243,014 or 2.95 per 100 people. The birth-rate was larger for males, their birth during the ten years referred to being 104.67 per 100 females. Below is shown a table showing the number of births and the ratio of male and female births from the 5th to the 32nd year.

Year.	Males.	Females.	Total.	Births per 100 Pop.	Males per 100 Females.
5th	290,836	278,198	569,034	1.71	104.54
10th	455,689	434,829	890,518	2.55	104.80
15th	474,189	448,526	922,715	2.49	105.72
20th	542,043	516,094	1,058,137	2.71	105.03
25th	617,234	589,800	1,207,034	2.94	104.65
26th	602,322	576,106	1,178,428	2.85	104.55
27th	620,844	588,139	1,208,983	2.89	105.56
28th	638,895	607,532	1,246,427	2.95	105.16
29th	651,468	630,710	1,282,178	3.00	103.29
30th	683,941	650,184	1,334,125	3.09	105.19
31st	696,131	673,491	1,369,622	3.13	103.36
32nd	705,071	666,120	1,371,191	3.10	105.85

Note:—The figures marked with an asterisk (*) represent persons whose sex was unknown

Year.	Males.	Females.	Total.	Mortality per 100 Pop.	Mortality of males per 100 females.
5th	208,092	197,312	405,404	1.22	105.46
10th	324,732	295,574	620,306	1.78	109.86
15th	346,112	322,230	668,342	1.81	107.41
20th	386,132	367,324	753.456	1.93	105.12
25th	452,136	434,852	886,988	2.16	104.82
26th	479,052	458,589	*937,644	2.27	104.46
27th	432,820	407,947	*840,768	2.01	106.10
28th	448,873	403,549	852,422	2.02	111.23
29th	469,485	443,336	*912,822	2.14	105.90
30th	452,383	424,454	876,837	2.03	106.58
31st	459,298	435,204	*894,503	2.04	105.54
32nd	474,043	453,002	*927,046	2.09	104.64

XII. DEATH.

During the ten years ended the 32rd year the average rate of mortality was 880,589 which correspond to 2.09 per 100 people. The rate of mortality was greater in males than in females, that of the former being 106.05 per 100 of the latter, as shown below:—

Though on the whole the rate of mortality is greater in males than in females, this is not uniformly the case for males of all ages, as the mortality of females is found to be greater than that of males according to the age. For instance the data obtained for the 32nd year show that, though the rate of mortality is greater for males at the age of less than ten years, the relative proportion is reversed between 11 and 40 years, to be again restored to the former proportion between 41 and 70. Finally, over 70 the rate of mortality shows a marked decrease for males.

Ages.	Mortality of males per 100 of females.	Ages.	Mortality of males per 1000 of females.
1 to 5	113.05	51 to 60	132.22
6 to 10	104.05	61 to 70	119.58
11 to 15	86.34	71 to 80	95.77
16 to 20	84.50	81 to 90	71.49
21 to 30	87.11	91 to 100	51.76
31 to 40	88.68	above 101	25.00
41 to 50	119.99		

XIII. NORMAL INCREASE OF POPULATION.

THOUGH an approximate idea of the normal increase of population may be obtained by comparing the birth-rate with the death-rate, this can by no means be accurate, inasmuch as there happen omissions in the report of births or deaths, or omissions to register and subsequent corrections. In fact the rate of increase of the population as statistically recorded is much greater than the difference between the birth-rate and the rate of mortality. The rate of yearly increase from the 5th year to the 32nd and the rate of increase per 100 population are recorded in the following table.

Year.	Increase.	Increase per 100 Pop.
Jan. 29, 5th year to Jan. 1, 6th year	189,850	0.57
Jan. 1, 6th year to Jan. 1, 7th year	325,003	0.98
Jan. 1, 7th year to Jan. 1, 8th year	371,771	1.11
Jan. 1, 8th year to Jan. 1, 9th year	340,955	1.00
Jan. 1, 9th year to Jan. 1, 12th year...	1,430,180	4 16
Jan. 1, 12th year to Jan. 1, 13th year	160,476	0.45
Jan. 1, 13th year to Jan. 1, 14th year	429,934	1.20
Jan. 1, 14th year to Jan. 1, 15th year	341,124	0.94
Jan. 1, 15th year to Jan. 1, 16th yeer	317,184	0.86
Jan. 1, 16th year to Jan. 1, 17th year	434,462	1.17
Jan. 1, 17th year to Jan. 1, 18th year	417,222	1.11
Jan. 1, 18th year to Jan. 1, 19th year	282,230	0.75
Jan. 1, 19th year to end of 19th year	355,960	0.93
End of 19th year to end of 20th year	562,514	1.46
End of 20th year to end of 21st year	537,543	1.38
End of 21st year to end of 22nd year	464,786	1.17
End of 22nd year to end of 23rd year	381,441	0.95
End of 23rd year to end of 24th year	265,216	0.66
End of 24th year to end of 25th year	371,263	0.91
End of 25th year to end of 26th year	298,373	0.73
End of 26th year to end of 27th year	424,902	1.03
End of 27th year to end of 28th year	457,405	1.09
End of 28th year to end of 29th year	437,644	1.04
End of 29th year to end of 30th year	520,599	1.22
End of 30st year to end of 31st year	534,290	1.24
End of 31st year to end of 32nd year	497,451	1.14

As may be seen from the foregoing table, the rate of increase is extremely irregular, being in some years less than ½, in others

1 and in still others 1 and a fraction. However in the 12th, 18th, 19th, 24 and 26th years when the rate stood very low various causes, such as the spread of epidemic diseases, the rise in the market price of commodities, etc. prevented the progress of the population. The average rate of increase during the preceding 28 years amounted to over 1.04 per 100 of the population.

In the relative rate of increase between urban and rural population, that of the former is, as already explained, considerably higher than that of the latter. This increase is however due to an abnormal cause which is operative in all civilized countries, that is to say, the emigration of villagers to towns and cities. As to the normal increase, the rate is higher in rural districts, because there the birth-rate is higher and the rate of mortality lower than the same rates in the urban districts.

During the ten years ending the 30th year inclusive, the birth-rate in cities possessing an actual population of not less than 25,000 was 2.30 and the rate of mortality 2.18 per 100 of the population, the increase of population corresponding therefore to 0.12. For the whole country the birth-rate was 2.92 and the rate of mortality 2.07, the balance in favor of increase being 0.85. Thus the rate of increase in cities is less by 0.73 than that for the whole country, as shown below:—

	For the whole country.			For cities of over 25,000 Pop.		
Year.	Births per 100 Pop.	Deaths per 100 Pop.	Balance between births and deaths.	Births per 100 Pop.	Deaths per 100 Pop.	Balance between births and deaths.
21st.....	2.96	1.90	1.06	2.40	1.07	0.33
22nd ...	3.02	2.02	1.00	2.38	2.15	0.23
23rd ...	2.83	2.04	0.79	2.49	2.37	0.12
24th ...	2.67	2.10	0.57	2.13	2.28	0.15
25th ...	2.94	2.16	0.78	2.32	2.37	0.05
26th ...	2.85	2.27	0.58	2.23	2.19	0.04
27th ...	2.89	2.01	0.88	2.29	2.00	0.29
28th ...	2.95	2.02	0.93	2.23	2.19	0.04
29th ...	3.00	2.14	0.86	2.16	2.02	0.14
30th ...	3.09	2.03	1.06	2.41	2.14	0.27
Average.	2.92	2.07	0.85	2.30	2.18	0.12

XIV. EMIGRATION.

EMIGRATION AT HOME AND ABROAD:—Apart from the migration of country people to towns and cities, the emigration to Hokkaidō from the rest of Japan proper deserves special notice, tens of thousand of settlers proceeding thither every year since the work of colonizing that northern island was started early in the Meiji era. This migratory movement is shown in the following table:—

Year.	Males.	Females.	Total.
5th	—	—	13,655
10th	—	—	2,539
15th	2,903	2,636	5,539
20th	4,278	3,509	7,787
25th	24,289	18,419	42,708
30th	36,457	27,893	64,350
31st	37,271	26,358	63,629
32nd	25,182	20,212	45,334
33rd	26,475	21,643	48,118

According to the returns of the settlers for the 33rd year, 25,927 were engaged in farming, 4,620 in fishery, 1,743 in manufacture, 3,385 in trade and the rest in miscellaneous occupations.

The emigration to foreign countries is comparatively insignificant, for those that go abroad generally stay there for a limited period, on official duty, for the purpose of prosecuting their studies, with the object of carrying on some business, or as laborers. This remark may also be applied to foreigners in Japan, so that in the present paragraph a few words may be said of the Japanese staying abroad and of the foreigners staying in our country.

JAPANESE STAYING ABROAD:—With the increase of intercourse with foreign countries, the number of Japanese going abroad is steadily advancing, so that while in the 22nd year the number was only 18,688 it grew to 58,785 in the 30th year, to be still further increased to 123,971 in the 33rd year. A review of the preceding 12 years shows the following figures:—

Year.	Males.	Females.	Total.
22nd	13,815	4,873	18,688
23rd	17,519	6,031	23,950
24th	23,681	8,465	32,146

Year.	Males.	Females.	Total.
25th	29,615	9,388	39,003
26th	31,147	10,055	41,202
27th	31,632	9,958	41,590
28th	34,332	11,945	46,277
29th	40,348	13,994	54,342
30th	43,707	15,078	58,785
31st	53,114	17,687	70,801
32nd	76,633	22,406	99,039
33rd	98,985	24,986	123,971

According to the returns for the last year in the above table, the majority of these temporary emigrants went to the United States of America and its colonies especially Hawaii, also to Korea, England and its colonies, Russia and its colonies, China, France, Peru and Germany. During the same year those temporary emigrants were employed thus :—

Country.	On official duty.	For prosecuting studies.	Engaged in trade.	Others.	Total.
United States and colonies ...	52	554	2,851	86,689	90,146
England and colonies	133	40	512	7,530	8,215
Russia and colonies	15	65	286	3,587	3,953
Holland	4	2	—	—	6
France and colonies	44	36	18	799	897
Portugal and colonies	—	1	—	9	10
Germany	33	162	5	14	214
Belgium	10	5	5	1	21
Italy	7	—	—	6	13
Spain	2	—	—	—	2
Austria	8	13	10	5	36
Peru	1	—	—	693	694
Brazil	7	—	—	2	9
Mexico	6	3	4	32	45
Siam	7	3	29	39	78
Korea	538	16	9,669	5,606	15,829
China	202	40	1,931	1,630	3,803
Total	1,963	940	15,320	106,642	123,971

Foreigners in Japan :—The number of foreigners coming to Japan has been on the increase since the treaty was concluded with the United States of America in the 1st year of Ansei (1854 A. D.). In the 6th year of Meiji (1873) the number stood at 4,190, increased to 4,236 in the 10th year, to 6,335 in the 15th year, 7,560 in the 20th, and so on, as detailed below.

Year.		Year.	
22nd	9,062	28th	8,246
23rd	9,707	29th	9,238
24th	9,550	30th	10,531
25th	9,803	31st	11,589
26th	9,633	32nd...	11,684
27th	5,875	33rd	12,664

In the number of foreigners in the 33rd year as classified according to nationality, the Chinese came at the top of the list, followed by the English, Americans, Germans and French, and so on, as shown in the following table:—

Nationality.	Males.	Females.	Total.
United States of America	833	629	1,462
Hawaii (U. S. A.)	2	—	2
England	1,260	784	2,044
British Dominion of Canada...	15	29	44
Russia	88	89	177
Holland	42	23	65
France	313	145	458
Portugal	112	61	173
Germany	395	145	540
Belgium	15	7	22
Italy...	31	12	43
Spain	30	7	37
Austria-Hungary	51	27	78
Denmark...	42	18	60
Switzerland	56	32	88
Sweden and Norway	36	14	50
Greece	10	2	12
Turkey	14	6	20
Peru...	1	—	1
Chili	2	—	2
Roumania	5	3	8
Argentine Confederation	—	2	2
Philippines (U. S. A.)	1	—	1
India (England)	7	—	7
Korea	184	9	193
China	5,394	1,496	6,896
Unknown	44	13	57
Total	8,983	3,553	12,536

The total of this table does not coincide with the other one, because 128 persons forming the diplomatic and consular staff were excluded from this table.

CHAPTER III.—Administrative System.

Rights of Sovereignty—Legislature and Legislative Organs—Executive and Executive Organs—Justice and Judicial Organs (with paragraphs on the Codes.)

I. RIGHTS OF SOVEREIGNTY.

Our Empire of Japan is ruled over by an Emperor whose illustrious ancestors have governed the country in unbroken succession since the remotest antiquity, and though, during the period of more than 2,500 years that has elapsed since the founding of the Empire, the nation has undergone various changes, this glorious dynasty has always remained unchanged, one Emperor succeeding another with a regularity and a certainty that vied with the succession of day and night, and the change of the seasons.

The administrative system was very simple in ancient times. There was no distinct line of demarcation drawn between military and civil affairs, while the whole nation was considered as one big army with the Emperor over it. It was during the Middle Ages and after the adoption of the Chinese system of administration, or more especially that of the then dynasty of Tung, that a line of demarcation was drawn for the first time between military and civil affairs. Soon, however, the warrior classes began little by little to acquire the supreme authority, and to thrust the Court into the background. For more than seven centuries the real sovereignty of the country was vested in one or other of the Regencies that appeared in succession, till, in the 2nd year of Keio (1866), the Regency of Tokugawa was made to surrender the power to its rightful and original possesser, and thus the Imperial régime was firmly re-established. One thing that must be strictly kept in mind in this connexion is the fact that, in theory at least, the Emperors remained even during those periods of military ascendency, the supreme heads of the country and were always regarded as sacred and inviolable.

The restoration of the Imperial Government was at once followed by many striking changes in the administrative system of the country, as may be inferred from the fact that within 18 years after feudalism was abolished in the 4th year of Meiji (1871), Japan promulgated her constitution and began to blossom forth as a constitutional monarchy. This great change naturally led to the sovereign rights of the Emperor in the three domains of legislative, juridical and executive affairs, being strictly defined in the manner given below. The Emperor's prerogative now consists in the :—

1. Right of convoking, opening, closing or proroguing the Imperial Diet, and of dissolving the House of Representatives.
2. Right of issuing, when some urgent necessity demands the exercise of that right and when the Imperial Diet is not sitting, Imperial Ordinances which take the place of regularly enacted laws.
3. Right of issuing or of causing to be issued the Ordinances necessary for the carrying out of the laws or for the maintenance of public peace and order, and for the promotion of the welfare of the subjects.
4. Right of determining, excepting in those cases especially provided for in the Constitution or in other laws, the organization of the different branches of the administration, the salaries of all civil and military officers, and of appointing and dismissing the same.
5. Right of taking the supreme command of, and determining the organization and peace standing of, the Army and Navy.
6. Right of declaring war, making peace and concluding treaties.
7. Right of proclaiming a state of siege.
8. Right of conferring titles of nobility, rank, orders and other marks of honor.
9. Right of declaring an amnesty, as well as the right of pardon, commutation of punishments, and rehabilitation.

II. LEGISLATURE AND LEGISLATIVE ORGANS.

History :—As provided in Art. VII. of the Imperial Constitution, the right of legislation belongs to the Emperor who exercises that right with the approbation of the Imperial Diet.

To briefly review the history of our legislature, the first thing that demands attention is the compilation of a code of laws by Prince Shōtoku during the reign of the Empress Shōmu (724–'48 A. D.) and the compilation of the celebrated Taiho code during the reign of the Emperor Mommu (697–718). Though considered very important in those days, these legislative measures were necessarily very simple, at least when they are viewed from the standpoint of to-day, so that their value is mainly historical.

During the periods of military ascendency and the prevalence of feudalism, the legislature was in an almost chaotic condition and it was not until after the Restoration that this fundamental organ of the administration was brought to a state of some perfection.

The first noteworthy legislative work accomplished by the reinstated Imperial Government was the issue, soon after its installation, of an Imperial Rescript by which the first corner-stone of the present Constitutional régime may be said to have been laid. That Rescript proclaimed. among other things, that "conferences shall be convoked all over the country and the affairs of State shall be determined by public discussion." The first legislative organ established in pursuance of that policy was the dual body consisting of the "Right House" and the "Left House" created in the 4th year. The "Right House" was composed of the Heads of Executive Offices of State and the other House of officials specially nominated by the Government. The "Left House" had to take charge principally of legislative work at the instance of either the Prime Minister or on its own initiative, while the "Right House" had to advise the Prime Minister as to the fitness or otherwise of the resolutions passed by the other house.

The two Houses were abolished in the 7th year, to be superseded by the Senate (Genrō-in) and the Local Governors' Council. The former was composed of Peers and of men who had rendered distinguished service to the country or who were eminent on account

of their erudition, and was to take charge of legislative matters either emanating from the Cabinet or introduced at the instance of the Senate itself. The Senate was also entitled to receive petitions about legislation, so that it may be regarded as a precursor of the present House of Peers.

The Local Governors' Council was something like a national assembly, composed as it was of officially nominated numbers; for as announced in the Emperor's Rescript addressed to the Council on the occasion of its first sitting, its object was "to attend to the affairs of State as the representative of the peoples' interests." In the same Rescript the Emperor said that he had called together the said Council "in pursuance of the solemn promise, given by Us on the occasion of Our accession to the Throne, to summon delegates of Our subjects, to assist Us in the conduct of affairs of State, to make with those delegates arrangements calculated to cement the amicable understanding that prevails between rulers and ruled, and to enable both to co-operate for the common good of the country," The Governors who attended the Council "were under no danger of incurring the displeasure of the Government for any opinion enunciated by them at the meeting."

The Council thus organized was abolished in the 13th year, but as meanwhile the system of local and municipal assemblies had been established, the organs for voicing popular opinion were now more satisfactority arranged. A change in a similar direction was made in the 14th year when the institution of a national representative assembly in the 23rd year was proclaimed. On the 11th February of the 22nd year the Imperial Constitution, the Imperial House Law, the Law of the Houses, the Law of Election of the House of Representatives etc., were promulgated, and in October of the following year the first memorable session of the Imperial Diet was convoked. In this manner did Japan obtain from her Emperor the great boon of a Constitution.

Legislative Procedure:—Projects of laws, originate either in the Cabinet or in the Diet, and become law when they obtain the approval of the Emperor and the consent of the Diet. A project coming from the Government is introduced to the Diet after it has been submitted to and discussed by the Cabinet and the Legislative

Bureau, and finally receives the sanction of the Emperor. Any project relating to a law connected with the Imperial Constitution must first pass through the hands of the Privy Council.

LEGISLATIVE ORGANS:—Strictly speaking, the legislature may be said to be composed by the two Houses of the Diet, though in a larger sense the Cabinet, the Legislative Bureau, and sometimes the Privy Council may be regarded as forming part of the legislative machinery.

1. HOUSE OF PEERS:—This House consists of Princes of the Blood, Peers, men of distinguished services or of remarkable erudition, and representatives of the highest-tax paying section of the people. It enjoys practically identical rights in the legislature with the other House.

2. HOUSE OF REPRESENTATIVES:—This House consists of members elected by the people; and all male subjects of over thirty years old are now eligible for election, there being at present no property or other qualification in consequence of the amendment of the Law of Election. Owing to the same amendment the electorates are no longer divided into small sections as they were before, and at present each prefecture is divided into urban electorates which are independent and rural electorates which return between them a fixed number of members determined according to the number of inhabitanls contained in the rural districts.

It must not be supposed that the Diet enjoys part of the rights of sovereignty, for, as we have already pointed out, these belong exclusively to the Emperor. The rights and privileges enjoyed by the Diet consists of the right of deliberating on legislative measures and of approving of such measures if they are considered to merit such approbation. Those rights and privileges may be briefly summed up as follows:—(1) the right of receiving petitions from the people, (2) the rights of submitting memorials to the Throne and of representations to the Government, (3) the right of demanding explanations from the Government about administrative affairs, (4) the right of supervising the finances.

LEGISLATIVE FORMS:—There are six legislative forms, namely, Laws, Imperial Ordinances, Ordinances of the Cabinet and of the Departments of State, and Rules and Instructions. All these measures

are published in the *Official Gazette*, and the date of the coming in force of a law is, unless otherwise specially determined, after the lapse of full twenty days from its promulgation, while all others are to come in force seven days after the issue of the number of the *Official Gazette* containing them.

A law may supersede an Ordinance, but under no case can an Ordinance supersede a law.

III. EXECUTIVE AND EXECUTIVE ORGANS.

History :—The organization of the executive was extremely simple in ancient times, the Emperor attending in person to all the affair of State, with the help of his Ministers and Councillors. There were no regular military generals, and the Emperor had to lead the army in person, or to appoint in his stead, a Prince or even the Empress, whenever any emergency arose. Afterwards the administrative system of the Tung dynasty of China was adopted; civil and military posts were created, and eight departments of state were organized. Though the administration was reduced to such a regular system, the practical benefit accruing from it seemed to have been out of all proportion to external improvement.

With the augumentation of the power of the military classes, the Court was left with merely a semblance of power, and during a long period of over seven centuries the country was ruled by feudal princes. This feudal system attained its greatest perfection under the Tokugawa Regency and during supremacy of that Regency,—a supremacy extending over about three centuries of prosperity. The Regency adopted a policy of decentralization and, unless required by special occasions, it left the feudal princes to rule their own dominions with perfect freedom. The administrative system of the Regency, a system copied by the feudal princes, was extremely simple. The principal officials who conducted it were the Tairō (Premier), Rōju (Ministers) and Bugyo (Magistrates). The system followed by the Regency was not of much value theoretically but, in the amount of the practical benefit it accomplished, it was a good system, resembling in this the British constitution.

It was after the disappearance of the Regency and the ushering in of the present Meiji Government that Japan began for the first time to possess a regular and efficient system of administration organs.

THE EXISTING ADMINISRRATIVE SYSTEM:—In the existing administrative system there is the Privy Council, the supreme advisory organ to the Emperor, while on the other hand there is the Cabinet, the central administrative headquarters, having under it nine Departments of State, that is to say, the Department of Foreign Affairs, Home Affairs, Finance, War, the Navy, Justice, Education, Agriculture and Commerce, and Communications. A Minister of State presides over each Department, and the Government establishes special Offices to deal with affairs relating to the auditing of the state finances, administrative matters, litigation and police. Each Department has under it a greater or less number of subordinate offices, and in this connection the Home Office stands out most conspicuously as it controls all the local offices and the various civic corporations.

The main points in the three administrative organs, central, local and civic corporations will be described below.

A. CENTRAL EXECUTIVE ORGAN:—The central administrative organ is divided into executive bodies and advisory bodies. The former consist of the Cabinet, the Departments of State, and special offices while the Privy Council, Codes Investigation Commission and similar commissions make up the latter.

First about the higher executive bodies with the Cabinet at their head.

I. THE CABINET:—The Cabinet is composed of the Ministers of State presided over by the Premier who, in obedience to the Emperor, deals with all matters relating to administration.

The principal matters to be determined by the Cabinet are as follows:—

a. Drawing up of projects of laws and compilation of Budgets and Settled Accounts.

b. Matters relating to treaties with foreign countries and to international questions.

c. Imperial Ordinances relating to official organizations or the operation of laws.

d. Disputes between the Departments of State as to jurisdiction.

e. Petitions of people sent in either by the Emperor or by the Diet.

f. Disbursements not covered by the Budget.

g. Appointments and other movements of officials of *chokunin* rank and of local Governors.

Matters of importance coming under the direct supervision of the Ministers of State may also be laid before a Cabinet Council.

Attached to the Cabinet is the Legislative Bureau which deals with matters relating to the drafting of projects of law or of Ordinances or their amendment or revocation, whether such drafting or amendment is done at the instance of the Cabinet, or of a Department of State or at its own initiation. It is also entitled to express its own opinion about those matters.

II. Departments of State:—The Minister who has charge of a Department of State is empowered to issue Departmental Ordinances and to issue orders to the chiefs of the Metropolition Police, the Hokkaidō Administration Office and provincial Offices in connection with matters coming under his direct control.

III. Special Administrative Offices:—There are two kind of special Offices, one independent of the Departments of State while the other is subordinate to them. The Board of Audit and the Administrative Litigation Court belong to the first class. On the other hand there are quite a number of Special Offices subordinate to one or another of the Departments, these being as follows, to mention only those that are important,—

Those that are subordinate to the Home Office:—Metropolitan Police Office, Ise Great Shrine and Great Shrine Construction Offices, Hokkaidō Administration Office, Provincial Offices, Formosan Governor-General's Office, Sanitary Laboratory, Blood-serum Laboratory, Vaccine Laboratory, Public Works Inspection Offices, Epidemic Diseases Laboratory.

Those that are subordinate to the Department of Agriculture and Commerce are as follows:—

Forest Inspection Offices, Mining Inspection Offices, Agricultural Experimental Farms, Industrial Laboratory, Geological Surveying Office, Steel Foundry, Yokohama Silk-Conditioning House, Salt Refinery, Mineral Fertilizer Surveying Officee

Horse Breeding Pastures and Studs Cattles, Breeding Pastures Sericultural Training Schools, Fishery Training Schools.

Those that are subordinate to the Department of Financ, are :—Inland Revenue Offices, State Monopoly Offices, Customs, Houses, Temporary Capitalized Pension Re-arrangement Offices, Temporary Okinawa Land Re-arrangement Office.

There are, besides, legations and consulates under the Foreign Office, various kinds of educational institutions under the Department of Education, military or naval schools under War Office or the Admiralty, but these are omitted here.

Advisory Organs of the Higher Executive Bodies :—

1. Privy Council :—The Privy Council is the supreme advisory body to the Emperor and attends to (*a*) matters relating to the Imperial House Law; (*b*) matters relating to projects of laws and Ordinances with reference to clauses in and laws and Ordinances pertaining to the Constitution; (*c*) matters relating to the declaration of a state of siege, to the issue of urgency Ordinances to take the place of laws when the Diet is not sitting, and to punitive provisions of the Constitution; (*d*) matters relating to treaties and international agreements, matters relating to the Organization and rules of the Privy Council; (*e*) other matters on which it is ordered by the Emperor to deliberate.
2. The Codes Investigation Commission :—Subject to the control of the Prince Minister, the Commission draws up drafts relating to the Codes and Laws and Ordinance, appertaining thereto, and also investigates matters relating to the putting in force of treaties.
3. Central Sanitary Association :—Subject to the control of the Home Minister, this Association submits its opinions on points referred to it by the Minister in regard to public hygiene and epidemics among domestic animals.
4. Public Works Commission :—Subject to the control of the Home Minister, the Commission submits its opinions on points referred to it by him in regard to various public works.

5. Higher Educational Commission :—Subject to the control of the Educational Minister, the Commission submits its opinions on points referred to it by him in regard to higher education.

6. Higher Council of Agriculture, Industry and Commerce :—Subject to the control of the Minister of Agriculture and Commerce, the Council submits its opinions on points referred to it by him in regard to agriculture, industry and commerce.

7. Railway Council :—Subject to the Minister of Communications the Council submits its opinions on points referred to it by him in regard to railways.

B. Local Administration :—The local administration system adopted by the Tokugawa Regency was based on the discentralization principal, and the local daimyos were left to do what they liked in the governing of their own dominions. With the abolition of the feudal system and the re-establishment of the Imperial Government, the administration policy was one of centralization, with the object of bringing affairs in the provinces to a state of uniformity. This policy was attended by some evil by which we mean to imply the doing away with some beneficial local customs, but of course this evil was outweighed by the immense improvement effected in the local administration.

Meanwhile the Government saw that the time had arrived for starting the contrary programme of decentralization of authority, and of allowing people to take part in administrative affairs. Thus in the 13th year the Provincial Assembly Regulations were enacted, followed in the 17th year by the Civic Corporation Regulations. In the 21st year the self-government system was in thorough working order, as it exists to-day.

The local administration system is divided into prefectual administration and sub-prefectual (*Gun*) administration. It combines two functions, that of being, on one hand, a part of the great administrative organ of state, and, on the other, of acting as a self-governing mechanism. As to the former all matters are in

the charge of the Governor who has to carry out, under the supervision of the various Ministers of State, Laws and Ordinances, to attend to all the administrative officers in his prefecture, and to keep peace and order therein. He is therefore authorized to summon military help from the nearest headquarters whenever an emergency requires it.

In regard to the self-government arrangement, it may be stated that every prefecture has a prefectual assembly composed of members who represent the people in the urban and rural districts. It discusses and deliberates on financial and other important matters of the locality. The assembly is convoked by the Governor at fixed periods, and the Local Council, while is a permanent institution, takes part on behalf of the assembly in administrative affairs, and attends to all affairs which the assembly cannot see to when it is not in session.

1. Sub-prefectural Administration:—It was in the 11th year that the sub-prefectural administrative arrangements were first elaborated in definite from. At present this administration does not differ in its procedure and principles from the prefectural administration of which it forms a part, and, just like the other, its system is twofold, that is it includes ordinary administrative business and self-government business.

2. Self-Government:—The Self-Government system as developed in the 21st year is divided into three grades, Prefectural, Sub-Prefectural and Civic Corporations (cities, towns and villages). Of these three divisions the last one relating to Municipal and rural Communities represent the self-government mechanism in its most striking form, for in the other two higher divisions, owing to the greater part they have to play in administrative affairs their self-government function does not lie so distinctively on the surface as in the other. Both legislatively and also practically the municipal and rural communities are *bona fide* self-governing bodies for they are entitled by law to enjoy the rights of juridical persons, also to incur obligations as such, and to arrange all public matters relating to their own communities.

IV. JUSTICE AND ITS ORGANS, WITH PARAGRAPHS ON THE CODES.

HISTORY :—The only authentic record worth noting in the history of justice in this country is the existence in the Middle Ages of a special office for dealing with criminal affairs, while during the period of military ascendency those matters were taken charge of by Censors. Coming down to the time of the Tokugawa Regency, magistrates were made to deal with civil and criminal affairs. They had not, however, any laws to follow, but were obliged to judge each case according to the lights of their own understanding and in comformity with the broad principle of chastising wrong and of upholding right.

The first regular Court of Justice established by Meiji Government was the Tokyo Court of Justice established in Tokyo in the 4th year. Within the following four years one Supreme Court and four Courts of Appeal, besides a number of lower tribunals were established. Several improvements were subsequently carried out, till at last by the Law of Organization of Courts, the present system was developed.

The most noteworthy chapter in the history of our judicial system is the doing away in the 32nd year (1899) with the extra-territorial rights which the Western Treaty Powers retained in virtue of the treaties concluded before the Restoration, and the bringing of foreign residents in Japan under the Japanese laws.

ORGANIZATION :—Our Judicial system is divided into four grades, that is Supreme Court, Appeal Courts, Local Courts, and District Courts. The last is the lowest tribunal and is conducted by a single Judge, while in the Local Courts three collegiate Judges sit on a case, in the Appeal Courts five collegiate Judges, and in the Supreme Court seven collegiate Judges. Public Procurators are attached to each Court, on commission from the Minister of Justice. It is needless to state that ordinary Judges represent the right of sovereignty of the Emperor and that their function is held sacred and inviolable. Hence their tenure of office is securely guaranteed by the Constitution. Judges are also amenable to special disciplinary laws.

Both the Judges and Public Procurators secure their appointments by passing the regular examination of Judges and Public Procurators.

The following table shows the number of courts and the staffs as they stood at the end of the 34th year :—

	No.	No. of Judges	No. of Procurators	Population per one Court	Area of district per one Court.
Supreme Court ...	1	25	7	45,193,583	24,998.80
Appeal Court ...	7	121	29	6,456,227	3,571.26
Local Court... ...	49	399	140	922,319	510.18
District Court ...	310	557	159	145,786	80.64

It may be added that the barristers are regulated by the Barristers' Law, and that various strict measures are in force with regard to their qualifications, rights and privileges, obligations, etc. They are amenable to the same disciplinary law as that enforced in the case of Judges.

WORK OF CODIFICATION :—Japan had no written code of laws properly speaking till about 30 years ago. The first attempt made in this direction was the compilation of a criminal code in the 3rd year (1870), to be amended three years after. The code was far from being perfect, having been mainly based on our ancient customs modified more or less by Chinese laws.

In the 15th year the Criminal Code and the Code of Criminal Procedure were enforced. The latter was subjected to a thorough amendment in the 32nd year, while the amended draft of the former was introduced to the Diet in the 18th session, but the dissolution did not allow it time to consider the measure. The principal statute laws thus far enforced are as follows :—

Imperial Constitution... (issued in the 22nd year)
Law for the Operation of Laws (in the 31st year)
Law of Nationality (in the 32nd year)
Criminal Code (in the 31th year,)
Criminal Procedure (in the 23rd year)
Civil Code (in the 29th—31st year)
Civil Procedure (in the 23st year)
Commercial Code (in the 23rd—31st year)
Insurance Law (in the 33rd year)
Law relating to the Registration of Real Estate ... (in the 32nd year)
Law relating to the Organization of Courts of Law... (in the 23rd year)
Law regarding Ships (in the 32nd year)
Law regarding Crews of Ships (do.)

CHAPTER VI.—Land as an Institution.

History—Classification—Burdens—Ownership.

I. HISTORY.

The history of the land in this country especially as regards the ownership of it, may be briefly divided into three parts. (1) The period of the ancient Imperial régime, (2) the period of military ascendency and feudalism, and (3) the modern period of the reinstated Imperial régime.

During the first stage all the land belonged theoretically to the Court, but, coming to the period of feudalism and military ascendency, we find that this power was practically held by the feudal barons. It was by a very precarious tenure that people were allowed to own their own land. It was after the Restoration that the right of the ownership of land by private individuals was firmly established by law.

In the first year of the present Meiji era (1867) the Imperial Government issued a proclamation to the effect that the land in the villages should belong to the villagers; in the 7th year the land was subdivided into state land and the land belonging to private individuals, and, finally, in the following year it was proclaimed that the title deeds should bear the names of the owners.

Classification of Lands:—State land and private land are classified, the former into four and the latter into two categories.

The four categories of State land are as follows:—

1. Land belonging to the Imperial Court, and land belonging to Shinto shrines.
2. Land belonging to Princes of the Blood and land belonging to the central and local Government offices.
3. Mountains, hills, woods and forests, plains, rivers, seas, lakes, ponds, swamps, drainage ways, ditches, embankments, roads, cultivated fields, etc. not belonging to private in-

dividuals; also land occupied by railway tracks, telegraph and telephone posts, premises of lighthouses, places containing historic remains, public parks, graveyards, and all other such land not belonging to private individuals.

4. Land occupied by temples, schools, hospitals, etc. not belonging to private individuals.

The two kinds of private land are as follows:—

1. Cultivated fields covered by title deeds, places of residence, woods and forests; lands occupied by schools, hospitals, storehouses, pastures, shrines, temples, etc. owned by private individuals or by several persons or by one or several village communities.
2. Land occupied by shrines, graveyards, sewer-ways, reservoirs, embankments, wells, ditches, highways, etc. not belonging to the State.

There are five kinds of land registers, namely national registers, prefectural registers, provincial registers, district registers and town and village registers. Special rules exist for regulating the determination of the various kinds of land.

Burdens on Land:—State land is of course exempted from taxation, and title-deeds are only issued to land coming under the 2nd category. For private lands the title-deeds are given for lands of both kinds, but those under the 1st category alone are subjected to taxation.

Taxable lands are divided into two classes as follows:—

1. Cultivated fields, dwelling lands, salt-fields, mines and mineral springs.
2. Lakes, ponds, woods, pastures, plains and miscellaneous lands.

Lands newly reclaimed are exempted from taxation during a certain period of years.

The Land Tax which stood at 2.5 per cent. of the assessed value until a few years ago was raised for a period of five years beginning from the 28th year (1895) to 3.3 per cent in order to meet the increased Government expenditure occasioned by the so-called post-bellum measures. The limit of five years is to expire

this year. The assessed value of course differs according to local circumstances, relative fertility, and other accidental causes. It is the principle of the Land Tax not to make any alteration according to the relative success of crops.

The Land Tax carries with it two kinds of rate, Local Rate and Municipal or Town or Village Rate. Unless with the approval of the Minister of Home Affairs the former cannot exceed 1/3 and the latter 1/7 of the main tax. The two rates are collected from the owners of the lands, except in some special cases.

Right of Ownership of Land:—The owner of a piece of land is of course entitled to do whatever he likes with his land, provided his act is not illegal and does not infringe on the rights of others. The owner of a piece of land has special privileges and obligations with regard to neighboring pieces of land, these being the right of way and the right of using other's land when one has to build or repair his house or fence etc. On the other hand a space of 1½ *shaku* from the common boundary line must be left in building a house on one's land, while a window or veranda placed within the distance of less than 3 *shaku* from the common boundary and from which the neighbor's premises can be seen, must be provided with a shutter. Then there are provisions for getting rid of superfluous water on one's land, but of course when such water happens to injure property of any kind in adjacent land situated on a lower level, the owner of the land from which the water came must pay for the damage done.

Besides the right of ownership, there are also the right of superficies, of perpetual lease and of emphyteusis attached to land, but these being dealt with minutely in the Civil Code need not be explained here.

It may, however, be stated that land is liable to be requisitioned when the interests of the public render such a step necessary. For particulars on this head, the Law for the Requisition of Land should, however, be referred to.

A special arrangement exists for the convenience of the trial extraction of minerals, an arrangement which is far more con-

venient than that relating to the ordinary process of requisition, for in this case of trial extraction the whole business is left under the case of the Chief of the Local Mining Inspection Office in the jurisdiction of which the case has occurred.

Land may constitute the hereditary estate of a Peer, and no land of this kind can be sold, transferred, mortgaged or hypothecated.

PART II.

PRIMARY INDUSTRIES.

AGRICULTURE.

CHAPTER I.—General Remarks.

I. GENERAL REMARKS.

The history of agriculture in Japan is coeval with the history of the country itself, for the sovereigns that have successively ascended the Throne during the 25 centuries that have elapsed since the accession of the first Emperor devoted all their attention to the prosperity and progress of this most important industry of the land, so that though subjected more or less to viscissitudes during that long period, agriculture still remains the bulwark of our national prosperity and power. In short, Japan is still essentially an agricultural country.

The development of agriculture has been markedly accelerated since the introduction of the Western sciences and arts after the throwing open of the country to foreign commerce and intercourse about fifty years ago. It need not be pointed out that Japan's traditional policy of fostering agriculture will be continued in the future.

In describing the condition of agriculture in this country there are two points that stand out prominent. They are (1) agriculture, as it is carried on here, is essentially tillage, and has little to do with stock-farming; (2) and, as compared with agriculture in Europe and America, the scope of our farming operations is extremely small.

The fact is that our forefathers who mainly subsisted on

cereals were led by religious prejudices to eschew animal food. Then the absence of wide plains, comparatively speaking, naturally obliged our farmers, then as now, to conduct their business on a small scale.

Foreigners not well acquainted with the state of affairs in Japan may be puzzled on being told that the average extent of land tilled by one farming family does not exceed one hectare. They may even wonder how our farmers can subsist on such a small patch of cultivated land; but this surprise, though quite natural for foreigners, will practically disappear when they remember that the system of tillage carried on by our farmers is extremely thorough and careful, and that, as two or even three crops are raised on the same field in one year even a farm measuring only one hectare is really equivalent in productive capacity to a farm of two or three hectares in most other countries. Besides, our farmers are not required to attend to field work all the year round, and when the field work makes no great demand upon their time they can undertake other kinds of work, while the women and children in their families are accustomed to make themselves as useful as possible by raising silkworms, reeling silk or doing other such suitable work.

As the natural result of the peculier geographical position of Japan, that is, of its extending so far north and south and including therefore so many degrees of latitude, our system of agriculture presents diverse distinct features according to places, and the natural tendency to diversity was further enhanced by the division of the country during the pre-Restoration days into a large number of practically independent communities. The consequence is that while in some districts sericulture is predominant, in others tea demands the most attention, while still others have sugar or other products as the staple farm produce. However, owing to the reasons mentioned above, stock-farming in as yet comparatively backward, though the rearing of live stock for tillage or draught work is carried on to no small extent in some districts.

Accurate data about independant farmers and tenant farmers are not procurable, and the only recent returns available are those for the 21st year (1888). The ratio between the two kinds of farmers stood as follows in 35 prefectures.

	Independent farmers.	Tenant farmers.
Wet fields	60 percent.	68 percent.
Upland fields	40 „	32 „

According to the same returns there were in 38 prefectures about 1,470,000 independent farmers and about 2,000,000 farmers who were partly independent and partly lessees of land, belonging to others while the *bona fide* tenant farmers numbered about 950,000. In other words, the farmers who were partly and wholly tenant farmers aggregated about 3 millions, and therefore about double the number of free-holders. As matters have become less favorable since that time for small free-holders, the ratio of tenant farmers and tenant farms must have grown more. Indeed the condition of tenant farming is far from being satisfactory, for, according to the investigations made in the 20th year, the landowners possessed about six parts of the wet fields of the country to every four parts possessed by the tenant; and four and a half part of the upland fields to every five and a half possessed by the tenants. The steady increase of population far beyond that of tillage land constitutes an important factor in keeping the rents high, for tenant farmers are obliged from sheer necessity to compete for leases and raising of course the rate as the natural result of their competition. In extreme cases the share that falls to the tenant farmers is barely sufficient to pay the cost of the manure applied to the fields.

Such being in general the state of our farming, the economy of our farmers is naturally small, and while in most cases they are obliged to depend in tillage on the labor of their own families, the limited funds at their disposal for getting fertilizers or farm implements further hampers them in their work. Under these circumstances, our farmers find it hard to keep up with the progress of the times. Something

must be done, however, towards ameliorating their condition, for though individually they are comparatively insignificant, their combined interests in the economy of the nation predominate considerably over all the others put together. The farming classes, for instance, constitute 60 per cent of the whole population, and are largely sending their surplus population to cities and towns. In view of this circumstance both the Government and the general public are doing their best to improve the mode of tillage, to encourage the use of labor-saving machines and devices, and also to promote all the important economic contrivances provided for the interest of farmers, so that it may safely be expected that the condition of our farmers will become much better in the near future than it is now.

CHAPTER II.—Factors of Tillage.

Climate—Land—Capital—Labor.

I. CLIMATE.

Owing, as we have already pointed out, to the fact that the territories of the Empire extend over about 30 degrees of latitude, and that the land is, moreover, hilly the climate is naturally varied. For a more detailed account of the climate the readers are referred to the chapter on climate given in the preceding part.

Conditions of the Weather:—The average yearly temperature in Okinawa and Formosa is above 20° C., while in Hokkaidō where the other extreme is to be found, the average is not more than 5°, according to places. The difference between the maximum and minimum temperatures is greater in the north than in the south, for while in summer the temperature stands comparatively high in the north, in winter, owing to the influence of the severe climate on the continent, the thermometer falls in many places below zero.

The prevailing wind in summer is a moist southerly wind, but in winter the cold northerly wind coming from the continent prevails. The season during which one of these two kinds of wind is exchanged for the other presents a peculiar meteorological aspect. Early in summer the moist southerly wind that begins to prevail brings about the rainy season, while in autumn when the northerly wind begins to take the place of the southerly, the low atmospheric pressures that frequently make their appearance in the south are liable to invade the country and to cause storms. The northerly wind coming from the continent in winter deposits its moisture borne from the Sea of Japan on the districts bordering that sea.

As a rule the moisture is greater in the southern provinces

and less in the northern, the rate in the latter being about one half that in the former. It is natural therefore that rain should be copious in summer in the southern districts and that snow should fall to a considerable extent in winter in the northern provinces. The average amount of rain and snow during or succeeding the 33rd year (1900) is shown below :—

	mm.		mm.
Taihoku	2,269	Niigata	1,760
Kagoshima ...	2,043	Fukushima ...	1,238
Ōita	1,599	Aomori	1,301
Nagasaki	1,944	Sapporo	970
Numazu	1,845		

The crops raised in Japan are naturally influenced by its climate, and it is principally on account of the copious rainfall and the high temperature in summer that rice is so universally grown throughout the country. The only drawback is the coming of storms between summer and autumn. Other tropical and sub-tropical plants besides rice are well suited to our country owing to the great heat in summer ; but, on the other hand, owing to the rather sudden fall of temperature in winter even plants growing in the temperate zone can not easily stand the winter.

In winter frost comes on almost everywhere throughout the country, while snowfalls much in the north-eastern districts. It is in these districts, that *mugi* and rape can be grown with success. However, the weather is apt to become humid at the ripening season of *mugi*, thereby impairing to no small extent the quality of those grains. The buds of the mulberry and tea plants, too, are frequently damaged by the frost that comes in early spring. The cultivators of those important plants are therefore devising various measures to prevent this injury.

In warmer places the better decomposition of manures and the vigorous growth of the plants make it possible to raise in a year two or even three crops on the same field, but the farmers in cooler districts must be contented with only

one. The two most convenient crops for wet fields are rice in summer and *mugi* or *genge* in winter. When only one crop can be raised, the choice lies between rice and *mugi*.

The choice of crops bears of course an important relation to the economy of farmers for their time is occupied all the year round when the tillage can be carried on throughout the year, while they can have more or less time at their disposal when farming operations are suspended in winter. As a general rule our farmers are least busy in winter, and this leisure they employ in repairing their tools and implements or making other arrangements against the coming season.

Stock-farming also bears an important relation to climate, but, as mentioned above, this branch of farming is decidedly secondary, both from traditional custom and from the lack of space available for it. It is however, gradually coming into use in the northern districts.

II. LAND.

Soil :—Though the soil of Japan is capable of being divided into a large number of classes, if the classification is made according to the nature of the original rocks from which the soil was formed, and according to the strata, it may also be divided broadly into two kinds, igneous and aqueous.

Nature of Soil :—Igneous rocks occupy over two-thirds of the whole surface of the country, but as these mostly exist on steep hills and peaks, only a very small portion is under cultivation. The nature of the soil is generally loamy and is therefore sufficiently fertile.

Aqueous rocks are much more limited in extent than the other, but as they occupy level plains they constitute practically all those portions of the country which are cultivated. Of the soils due to aqueous formation, those that are of Tertiary and sedimentary formations are the most important arable land, while those belonging to Paleozoic formation are limited in extent. The soils of Tertiary and sedimentary formation are seen to the best advantage in the north-eastern

part of Honshū and in Hokkaidō. The Kwantō Plain consists of this kind of soil, which also constitutes the greater part of the land in Hokkaidō.

The soil of these two aqueous formations is generally clayey, the decomposed vegetable matter being mixed with clay to a greater and greater extent as we proceed northward. Agriculturally therefore this soil is of moderate fertility, but as the soil in Hokkaidō contains a large quantity of decomposed vegetable matter accumulated for many centuries, its fertility is far greater than that of the soil in Honshū.

The sedimentary formation is found in many parts of the country, and from their being level and therefore easily irrigated besides being loamy and fertile, soils of this formation are well adopted for the cultivation of rice. The fact that soils of this formation are to be found in almost every part of our country is due to the hilly nature of the land and to the comparatively short distance the rivers have to run between their sources and the plains, in consequence of which the currents, which are therefore rapid, carry all the finer particles contained in the soil towards their mouth. It is owing to this reason that the soil of this formation is loamy or sandy. Whether loamy or sandy, it is fertile, probably owing, in a great part, to the sufficient supply of rain.

Classification of Land:—The land in Japan proper (exclusive of Formosa) occupies an area of 24,794.36 sq. *ri* which corresponds to 38,555,229 *cho*. This land can be classified as follows as to ownership and condition:—

1ST KIND.

Land owned by private individuals	14,272,339 *cho*

TAXABLE LAND.

Wet or upland fields	5,045,278
Dwelling land	384,635
Salt fields	7,090
Forests	6,997,571
Plains and pastures	1,075,246
Mineral springs, ponds, swamps and miscellaneous	20,967
Total...	13,530,788

LAND EXEMPTED FROM TAXATION FOR SOME YEARS.

Newly opened land	10,556
Waste land	232,730
Wet fields	71,721
Upland fields	133,164
Dwelling land	3,230
Salt fields	8,900
Plains and pastures	11,865
Mineral springs, ponds, etc.	3,236
Total	243,286

LAND EXEMPTED FOR TAXATION AND UNTAXABLE LAND.

School land	1,660
Premises of shrines	1,164
Cemeteries and graveyards	22,773
Sewer-ways, drainage ponds, etc.	49,638
Embankments	4,027
Railway tracks	7,611
Protection forests	401,045
Roads and water-works routes	828
Farm boundaries	9,277
Others	236
Total	498,265

2ND KIND.

	State Land	21,394,805
A.	Land belonging to the Court, Imperial Mausolea, Shrine premises	3,670,803
B	Land belonging to Princes of the Blood, Government land	80,171
C.	Government land, forests, plains; Public parks, former foreign concessions, foreign cemeteries, etc.	17,643,063
D.	Premises of Government and local institutions, hospitals, etc.	766
	Grand Total	35,667,144

The grand total deducted from the gross area of 38,555,229 *cho*, there remain 2,888,085 *cho* which account for highways, places under water, etc.

CLASSIFICATION OF ARABLE LAND:—The gross area of our arable land is 6,120,519 *cho* which can be divided as follows according to uses:—

Wet fields	2,748,575	*cho*
Upland fields (containing	2,296,698	„
Mulberry fields...	222,731	„
Tea plantations	31,889	„
Plains and pastures	1,075,246	„

The whole area of the arable land in Japan is only 15.7 per cent of the whole area of the Empire (exclusive of Formosa): in other words, the whole area of arable land extends over an area of 38,555,229 *cho* as before mentioned. On the other hand the area of wet and upland fields which amounts to 5,045,273 *cho* corresponds to only 12.9 per cent. of the whole country. The comparatively small area of arable land is solely attributable to the hilly nature of our country. The foregoing extent of arable land is distributed among the local prefectures, in the proportions given in the following table :—

Prefectures.	Wet fields.	Upland fields.	Plains and pastures.	Total.
Tokyo	17,892	42,265	7,664	67,821
Kanagawa	23,868	49,855	25,949	99,672
Saitama	66,876	97,576	9,110	173,562
Chiba	102,101	73,499	19,339	194,939
Ibaragi	88,152	101,698	20,172	210,022
Tochigi...	50,199	54,232	25,448	129,879
Gumma	21,911	69,498	23,272	114,681
Nagano...	68,886	90,547	183,776	343,209
Yamanashi	18,443	41,898	13,250	73,591
Shizuoka	60,993	65,566	75,067	201,626
Aichi	87,595	60,921	6,899	155,415
Miye	73,611	24,629	4,602	102,842
Gifu	61,644	47,428	8,490	117,562
Shiga	63,215	11,222	10,106	84,543
Fukui	45,261	14,391	2,562	62,214
Ishikawa	50,879	30,665	3,317	84,861
Toyama	76,148	18,220	3,998	98,366
Niigata	162,163	77,092	14,726	253,981
Fukushima	91,451	72,408	24,112	187,971
Miyagi	80,706	38,320	13,310	132,236
Yamagata	84,378	42,201	14,991	141,570
Akita	98,404	35,025	75,699	209,128
Iwate	50,514	86,776	97,041	234,331
Aomori...	58,13	51,773	69,679	179,465
Kyoto	46,578	18,957	1,317	66,852

Prefectures.	Wet fields.	Upland fields.	Plains and pastures.	Total.
Ōsaka	53,568	16,759	673	71,000
Nara	33,118	10,841	910	44,869
Wakayama	31,622	12,832	1,380	45,834
Hyogo...	106,240	33,806	12,541	152,587
Okayama	81,530	38,630	4,375	124,535
Hiroshima	74,557	36,991	2,824	114,372
Yamaguchi	79,077	34,668	2,599	116,344
Shimane	54,729	41,518	1,404	97,651
Tottori	31,521	13,240	60,160	104,921
Tokushima	22,488	38,480	1,406	62,374
Kagawa	39,369	10,305	300	49,974
Ehime	47,067	69,614	653	117,334
Kōchi	34,633	80,867	1,856	117,358
Nagasaki	33,137	56,316	22,686	112,139
Saga	50,404	20,358	27,761	98,523
Fukuoka	109,618	52,177	45,939	207,734
Kumamoto	65,361	107,938	13,878	187,177
Ōita	50,519	49,194	59,388	159,101
Miyazaki	39,461	67,936	22,174	129,571
Kagoshima	55,387	161,473	35,546	252,406
Hokkaidō	1,478	15,814	2,523	19,815
Okinawa	3,723	8,355	unknown	unknown
Izu group	65	1,903	450	2,418
Total	2,748,575	2,296,698	1,075,246	6,120,519

Character of Arable Land :—The cultivation of rice being the principal item in the work of our farmers, the greater part of the arable land consists of rice fields which often occupy places situated in low and wet places and not quite suited for other crops. Of these rice fields 30 per cent. admit of receiving a second crop after the harvesting of the rice. Upland fields are to be found on the other hand in elevated places where the drainage is good. In districts which are very densely populated or where special agricultural products are to be raised, even the slopes of the hills are utilized for upland farming.

The lots of cultivated fields are extremely small. According to the latest returns 53 per cent of the wet fields consisted of lots measuring less than 5 *se*, while about 74 per cent of

upland fields consisted of lots of less than 1 *tan*. The average extent of lots (exclusive of Hokkaidō and Formosa) was 4.14 *se* for wet fields and 5.12 *se* for the other. The lots for wet fields were those registered in the Land Records, and as each lot was further subdivided the real extent of each lot did not exceed 2 *se*. Such an extraordinarily small extent of cultivated fields is principally due to the comparative absence of level plains, to the necessity of irrigation, and also to the fact that tillage is principally done by hand. Besides, the shape of the lot too is, as a rule, very irregular, and these necessarily entail serious inconvenience on the cultivator. It is in view of this that of late the question of rearranging the farm boundaries has began to attract serious attention in agricultural circles.

Irrigation and Drainage :—Irrigation and drainage being indispenable for the cultivation of rice, provisions for facilitating them have been made since ancient times. The sovereigns of the country have also shown a great solicitude to make these provisions as complete and perfect as possible. The water used for irrigation is either led from rivers or procured by storing rain-water in reservoirs. The usual mode of irrigation for rice fields consists in leading the water into the said fields till it has accumulated there in a sheet suitable in depth and volume. The farm is therefore made very level and is encircled by boundary walls 30 to 35 centimetres in height. While the water is led into the farm from an elevation it is made at the same time to flow out by an outlet provided at the other end of the farm. The other crops receiving irrigation are generally cotton, indigo and sugar cane, and the irrigation for them consists in leading water into the spaces between the ridges, and causing it to remain there, till it soaks through.

The condition of the rivers naturally bears an important relation to irrigation and also to the success of farming. The recent reckless felling of trees at the head waters of rivers has made the beds of rivers liable to rise, as to obstruct the exit of water from the rice fields, the surface of the rivers being often

higher than the water in the farms, and also to cause far more serious damage by overflowing the embankments in time of heavy rain and flooding the fields situated in close proximity. In view of these considerations the government is at present doing its best to prevent such ravages on the part of unruly rivers, and has by means of legislation devised measures for protecting the forests at the headwaters. Farmers are made to organize themselves into irrigation guilds and to make all the required arrangements for the protection of their common interests. All these legislative measures have not yet been completed but when they are completed the benefits derived by the farmers from irrigation will be much greater than at present, while the risk of inundation will be minimized. It ought to be added that besides constructing reservoirs wherein to store rainwater, at a place where water for irrigation purposes cannot be easily procured owing to the high situation of the farms, farmers use treadmills or water-mills to raise water. Steam mills are even employed when a large quantity of water is required for elevated farms.

The waste water coming from the irrigated fields is led off by a net-work of drainage ways, mostly small open channels, till it unites in one or more big channels and is discharged into rivers. But in low places where this natural method of drainage is not admissible, waste water must be removed either by water mills or by steam pumps. To some limited extent, and especially in places where the waste water is liable to stay, a subterranean drainage system is adopted.

Some Improved Arrangements :—Of the improved arrangements of farming those that are generally carried out are the re-arrangement of farm-boundaries, and the improvement of the drainage, irrigation, surface coating of the soil, etc.

I. Re-Arrangements of farm-boundaries :—As already described in the preceding part, the size of farms in our country being small, their enclosure by walls and farm-fences, is naturally considered a waste of time and of space that might be employed to better advantage not to speak of the danger to which such

enclosure gives rise of providing reptiles, rodents and injurious insects with a snug dwelling-place in the boundary lines or paths. The amount of time which our farmers lose owing to the small size of the farms may be easily imagined when it is remembered that though the average area of the farm tilled by one family does not exceed 9 *tan* 3.15 *se*, the different farms making up this average total are generally scattered about, and very rarely situated at one place. It was to obviate this disadvantage that the Government, with the approval of the Diet, enforced the law for the Re-arrangements of Farm Boundaries from Jan. of the 33rd year. This measure has been welcomed by the public and already the provisions set forth in it have been carried out in 140 places where re-arrangements of fields amounting altogether in area to over 8,000 *cho* in area, have been effected. Some of the benefits arising from the measure are described below :—

a. Owing to the size of the lots being enlarged and their shape made regular, farm-work is considerably expedited and animals for laboring in the fields and labor-saving machinery are more easily employed.

b. Owing to the farm-boundaries or paths being straightened and those that are useless destroyed, the productive power of a given extent of land thus treated, is increased at the rate by from 3 to 10 per cent.

c. Drainage and irrigation ways being re-constructed or constructed *ab initio*, both the drainage and irrigation systems can be brought to a state of greater perfection. As the disadvantage arising from an insufficiency of irrigation water or from too much of it, is done away with, the productive power of the farms is increased.

d. Farmers being encouraged to exchange their fields for fields owned by others, so as to collect as much as possible in one place the farms owned by one proprietor, all the evils and disadvantages incidental to the scattering of farms owned by one proprietor are done away with or minimized.

II. Drainage and Irrigation :—It is evident that the draining away of the superflous water from the surface of the soil tends very much to improve its fertility, and this is specially important, for rice fields which are generally saturated with water and are hardly fitted to admit of cultivation for the raising of a second crop after the harvest of rice. This is of course a grave economic disadvantage, and it is satisfactory to see that with the advance of knowledge among farmers this point has began to attract their attention, with the result that, in not a few districts, subterranean drainage systems have been constructed. In some places even special implements are used to effect the removal of superfluous water. Upland farms being naturally dry, owing to their situation, do not generally require any attention to be paid to their drainage.

III. Irrigation :—Irrigation is universally carried out owing to the necessity of rice cultivation, but very rarely is this irrigation effected for the purpose of increasing the fertility of the farms. In some places, however, the water from the streams flowing close by is led into the farms during winter, to cause it to deposit its sediment and to thus increase the fertility of the farms.

IV. Surface coating of soil :—The mixing of sand with soil which is too clayey, or the addition of clay or vegetable mould to soil which is too light and sandy, has been extensively practised by farmers from early times.

V. Burning of surface soil :—Surface soil abounding in vegetable matters is often burned in order to diminish the quantity of this matter, and in some cases the woods or grass land cleared for cultivation are also burned in order to improve the soil.

Mode of Utilization of arable land :—Arable land is utilized to the greatest extent as rice fields, after which come upland farms including tea plantations and mulberry fields. Pastures are very scarce, and are owned by the Government for experimental purposes and by a limited number of stock-farmers.

Though the utilization of land as rice fields is so

universal, these fields are, however, far from being utilized as they ought to be, to the utmost extent, chiefly owing to the fact that they are not so largely used for raising the second crop of the year. It is only in Formosa, Okinawa and some parts of Shikoku where the temperature is higher than in the other parts of the country that two crops are raised in the rice fields. In most other places, the low temperature of the soil, owing to the presence in it of too much moisture, obliges the farmers to content themselves with the cultivation of rice alone. Still, owing to the improvements effected, the area of two crop land is gradually increasing, as shown below :—

	cho.	Ratio to whole area of rice
One crop fields	1,985,513	71
Two crop fields	755,983	29

The second crop raised after the cultivation of rice is generally *mugi*, rape, *genge* or Japanese clover.

The most important point in the utilization of dry upland farms consists in the choice of crops to be raised after the preceding crop has been harvested. The crops raised in upland farms are generally grains, garden vegetables or crops of industrial value. Sometimes other crops are raised in the spaces left unoccupied by the crop that is growing. For instance garden vegetables or sweet potatoes may be planted in fields where *mugi* is growing.

In general two crops are raised in one field, though in rare cases and in warmer districts as many as four are found; as, for instance (1) *mugi*, (2) indigo, (3) beans, (4) rape.

Mulberry trees and tea shrubs are generally planted in fields set apart for this purpose, and they generally occupy land not well suited for the planting of more important crops, such as the slopes of hills, sandy dunes and such like places. They are also largely planted along the borders and edges of ordinary fields.

As mentioned above, upland fields devoted to the cultivation of grasses for feeding cattle are extremely scarce, and it is only in Hokkaidō and the O-U districts where stock farming is comparatively thriving that grasses are cultivated to some extent.

Reclamation of land:—The reclamation of forest or wild land either belonging to private individuals or to the State is going on more or less in Japan proper, exclusive of Formosa and Hokkaidō. Special provisions exist for selling State wild or forest land to people desirous of converting it into ordinary cultivated land. To enumerate the kinds of land thus reclaimed recently, the area reclaimed in the 31st year was 6,083 *cho;* in the 32nd year, 9,890 *cho;* in the 33rd year, 7,790 *cho.*

The reclamation is of course far more striking in Hokkaidō where large tracts yet remain to be brought under cultivation and where the Government has adopted various measures for inviting settlers from other parts of the country, by offering them a fixed rate of land free of price under certain conditions. The land thus opened up during the last seven years with the aggregate extent of reclamation existing at the end of each year is shown in the following table:—

Year.	Area newly reclaimed.	Total reclaimed area existing at the end of the year.
26th	8,691	65,677
27th	15,899	82,111
28th	15,677	97,806
29th	19,597	115,538
30th	24,697	142,707
31st	28,178	170,293
32nd	37,002	215,595

It is of course out of the question to expect in Japan proper any such striking reclamation. However there exist, even in Japan proper, lands which though still left unutilized for agricultural purposes may with profit be reclaimed by proper care and by the application of improved methods of agriculture. Supposing hilly land which is not inclined at an angle of less than 15° is capable of being thus utilized, this kind of land is found in Japan proper and Hokkaidō to the following extent:—

	Whole area.	Level land inclined at an angle of less than 15°.	Area under cultivation.	Level land inclined at an angle of less than 15° not yet reclaimed.
	cho.	*cho.*	*cho.*	*cho.*
Honshū	22,636,578	5,602,786	3,777,312	1,825,474
Shikoku	1,790,346	439,671	305,959	133,712
Kyūshū	3,676,347	1,102,666	883,008	219,656
Hokkaidō	7,848,783	2,383,889	215,595	2,068,294
Total	35,952,055	9,429,012	5,181,874	4,247,136

Note:—In the forgoing figures the data for Okinawa and the Izu archipelago are not included.

III. CAPITAL.

LAND :—The cultivated land that forms the basis of our farming covers over 5 million *cho* yielding about 1000 million *yen* worth of crops every year. Of that sum rice constitutes about 400 million *yen* in value. The value of cultivated land is estimated at above 7000 million *yen*.

BUILDING :—Farm buildings and outhouses generally form part, in consequence of our farming system, of the farmers' dwelling-houses, and as the farming carried on is on a comparatively small scale, the capital invested in this respect is not large. If, however, the dwelling houses of 5 million farming families are included, the capital invested on this account may be estimated at about 290 million *yen*.

WORKING CAPITAL :—Apart from the capital invested in land and buildings for farming purposes, farmers require working capital broadly existing in the following shapes :—

Consolidated { Tools and implements. / Live stock.

Floating { Manure. / Fodder.

I. TOOLS AND IMPLEMENTS :—From the limited scope of farming and also from the abundant supply of labor, farming in Japan is chiefly carried on by manual labor, the farmer being partly assisted by cattle. Implements of any elaborate nature are not, therefore, employed to any great extent, and the tools used are not always made of metal. The tools and implements used in Japan may be divided into these kinds, namely, (1) those for tillage, (2) those for carriage, and those for horses and other domestic animals used for field-work.

While the tools and implements employed are so limited both in kind and in labor-saving capacity, even the number of those tools and implements possessed by our farmers is comparatively small, as these farmers are accustomed to borrow agricultural implements from one another. The farming implements generally possessed by a family cultivating 1 *cho* of wet and dry fields may be something as follows in value.

	yen
For field work	2.75
For use in-doors	1.10
For use in storehouses	12.65
Total	16.50

Estimated at the foregoing rate the value of the farming tools for the whole cultivated area of 5 million *cho* amount to 82,500,000 *yen*. However, as this estimate applies to districts when tillage is exclusively done by manual labor, the above sum is to be raised to some extent when live stock are counted in.

II. Live Stock :—The beasts used in farming are cattle and horses, and their use is greater in the southern districts where horses are generally used, and less in the northern districts in which oxen are more usually employed. On the whole the number of horses is more numerous than that of oxen. These beasts are used principally for tillage and as beasts of burden, though to some extent they are also useful, as in other countries, for supplying manure.

Though at present farming chiefly depends on human labor it is inevitable that this state of things must change with the progress of the times and that our farmers must be prepared to make use to a greater extent of the cheaper labor supplied by machinery and beasts. The utilization of beasts in the field of the labor is all the more necessary in a hilly country like ours where the employment of any large labor-saving machines is not easily possible. Horses and oxen are in part employed largely in agricultural operations in districts where agriculture has had a greater development than in other districts. In such go-ahead localities, every farmer keeps one or two or even three farm beasts.

At present the number of live stock in our country is out of all proportion to that in Western countries, but this state of things will be radically changed for the better at no distant time, for the public and especially the farmers have become convinced of the necessity of utilizing the labor of beasts.

III. Manure :—Night soil and stable manure play a most important part as fertilizers though recently farmers have begun to supplement them with other kinds of fertilizers. These fertilizers

are generally of four kinds, namely, artificial fertilizers, vegetable fertilizers, animal fertilizers, and miscellaneous fertilizers. Of the above vegetable fertilizers, rape-seed cakes and bean-cakes are especially predominant. Next to them come animal fertilizers in which fish guano is most conspicuous. Artificial manures are also employed to no small extent. These fertilizers are either made at home or are imported, and of the imported fertilizers rape-seed and bean-cakes from China are the most important both in quantity and value.

The following figures show the output of the principal fertilizers made at home in the 33rd year:—

Kind.	Quantity. *kwamme.*	Value. *yen.*
Fish guano (herring or sardine)	26,147,225	7,058,117
Dried herrings	4,483,018	1,400,319
Rape-seed cake	12,697,080	—
Sesame oil cake	233,010	—
"Ye" oil cake	387,860	—
Cotton seed cake	1,502,130	—
Other varieties of oil cake	1,763,640	—

The demand for chemical fertilizers having grown very marked of late, the manufacture of superphosphate of lime and other phosphate manures, and nitrogenous manures has become active. The output at the principal establishments during the last one year is shown below:—

TOKYO ARTIFICIAL MANURE COMPANY.

		packages.
Ordinary super-phosphate of lime	Available Phosphate 15 to 16 %	568,140.8
Extra super-phosphate of lime	„ 18½–19½%	10,956.5
Ordinary complete manure.	Available nitrogen 6–6½% „ phosphate 5½–6%	17,971.5
Extra complete manure ...	Available nitrogen 7–7½% „ phosphate 5–5½%	38,828.8
Powdered bone	Available nitrogen 3½–4% „ phosphate 21–23%	2,186.0
Total...		603,083.5

ŌSAKA SULPHATE OF SODA COMPANY.

		Packages.
No. 1 Fertilizer	Available phosphate 15%	335,339
No. 2 „	Available phosphate 12% „ sodium 10%	16

		Packages.
No. 3 „	Available phosphate 9% „ nitrogen 5% „ sodium 7%	725
No. 4 „	Available phosphate 7½% „ nitrogen 5% „ sodium 10%	12
No. 5 „	Available phosphate 11% „ nitrogen 5%	41,773
No. 6 „	Available phosphate 7½% „ nitrogen 10%	41,300
No. 7 „	Available phosphate 6,4% „ nitrogen 12%	986
No. 8 „	Available phosphate 9% „ nitrogen 8%	8,515
No. 9 „	Available phosphate 9% „ nitrogen 5%	3,331
No. 10 „	Available phosphate 6% „ nitrogen 10% „ sodium 5%	4,237
No. 11 „	Available phosphate 6% „ nitrogen 7½% „ sodium 9%	137
Total		436,371

TOGI FERTILIZER WORKSHIP.

		Packages.
Super-phosphate	Available phosphate 15%	170,940
Mixed phosphoric acid ...	Available phosphate 6½% „ nitrogen 6.0%	51,744
Double super-phosphate ...	Available phosphate 21%	4,206
Soluble bone powder... ...	Available phosphate over 21% „ nitrogen 2.0%	5,178
Mixed guano	Available phosphate 5.0% „ nitrogen 3.5%	1,176
Nitrogen phosphoric acid No. 1	Available phosphate over 11% „ nitrogen „ 5%	2,610
„ No. 2	Available phosphate over 7% „ nitrogen „ 10%	2,460
„ No. 3	Available phosphate 6% „ nitrogen 12%	850
Total		239,164

NIPPON ARTIFICIAL FERTILIZER COMPANY.

		Packages.
Super-phosphate	Available phosphate 15%	141,343

KYOYEKI COMPLETE FERTILIZER COMPANY.

		Packages.
Super-phosphate	Available phosphate 15%	87,289
Grand Total		1,507,250.5

Note :—A package weighs 10 *kwamme*.

The import of fertilizers from abroad stood as follows in the 34th year :—

Kind.	Quantity. Catty.	Value. *yen.*
Bones	1,231,332	257,147
Powdered bones	337.571	12,932
Dried fish guano	7,516,014	238,969
Fowls guano	2,660	60,580
Oil cakes...	3,477,704(Picul)	8,109,236
Super-phosphates	68,178,307(Catty)	437,910
Others	—	739 956
Total...		9,796,214

Note :—Fractions of a *yen* are omitted.

Though the import of foreign fertilizers of all kinds has been steadily on the increase of late, in no particular kind of fertilizer has the increase been more striking than in oil-cakes. In the 25th year the import of oil-cakes reached 616,427 piculs valued at 824,652 *yen*. In quantity the import has increased five-fold during the next ten years and in value about tenfold. The bulk of the imported oil-cakes consists of bean-cakes coming from northern China, and the marvellous increase in the demand for oil-cakes proves how much our farmers have began to appreciate the value of nitrogenous manure.

While the consumption of imported and home-made fertilizers is so extensive, at the same time the farmers living in remote districts depend even at present chiefly on manures made at their own homes, such as stable manure, composts, and night soil.

With the greater use of artificial fertilizers the Government perceived the necessity of providing against the dishonest practices of merchants and manufacturers and of enabling farmers to secure really valuable fertilizers. This resulted in the enforcement in December 32nd year of the Law relating to the Control of Fertilizers. It is not yet possible to ascertain how far this piece of legislation has been successful in its object, but, according to the report made by the inspecting officials whose duty is to supervise the operation of this law, the arrangement was working satisfactorily, at least during the 34th year, which the said report covered.

IV. Fodder:—The comparative insignificance of stock-farming is naturally reflected in the imperfect manner of feeding live-stock and though oats and such food are excellent for them, the food generally given by our farmers to cattle and horses consist of brans of various kinds, hay or fresh grass.

Here ends this brief description of the working funds of our farmers. We have next to describe the banking facilities that exist for their benefit.

V. Banking Facilities for Farmers:—In Japan as elsewhere there is a tendency for the wealthier classes to grow in all spheres of activity at the expense of the poorer classes and it naturally follows that our farmers whose means are generally very limited are in danger of having even these limited means absorbed by manufacturers or merchants of larger resources. It is therefore necessary to provide some banking facilities for our farmers. The Japan Hypothec Bank (Kangyo Ginkō), the Local Hypothec Banks (Nōkō Ginkō), the system of Credit Guilds, and the Colonial Bank (Takushoku Ginkō) have all been created with the express object of satisfying this requirement. Those establishments will be briefly described in the following paragraph.

A. The Japan Hypothec Bank:—This bank was started by law in the 29th year (1896) with the express object of supplying the funds required for the development of agriculture and industry. The preamble of the law succinctly explains the nature of the business to be transacted by the bank. "If admits of no doubt," it stated, "that the comparative lack of development of our agriculture is mainly attributable to absence of proper facilities for supplying funds on the security of real estate. Now, in order to carry to greater prosperity the agriculture of our country and to promote its productive capacity, there are many things to be undertaken, these being the reclamation of new land, the control of rivers, planting of woods, providing of better facilities of irrigation or drainage, improvement of the mode of tillage, convenient supply of fertilizers, and sundry other things. But those improvments cannot from their very nature, yield returns until after the lapse of ten or a score of years, so that funds which, in trade, can yield returns in a very short space of time are entirely

out of place in undertaking connected with farming. The funds furnished to farmers must be lent for long periods and at low rates."

The bank was established to supply this want, as a joint stock company with a capital of 10 million *yen*, and the term of 100 years. Enjoying a grant-in-aids from the State, it is subject to the strict supervision of the Minister of Finance. The object of the bank's business, as indicated by the phrase "improvement and development of agriculture and industry" as set forth in Article I of the Law, is shown below:—

LOANS.

Loans on Real Estates Loans on credit.

PAYMENTS.

Payments by instalments... In less than 50 years.

Payments within fixed period { Within 5 years, the aggregate loans of this kind not to exceed 1/10 of that of loans payable by instalments.

Loans on credit are made only to public bodies such as municipal corporations, towns or villages, or other bodies organized under law.

The bank, principally deals, however, with loans of larger amounts, leaving those for smaller amounts to be undertaken by the Local Hypothec Banks which in organization and nature may be regarded as miniature copies of the central Hypothec Bank. The result is that although loans for such costly undertakings as the reclamation of large tracts of land or any similar work can be procured on easy terms from the Japan Hypothec Bank, the farmers of small means who constitute by far the greater majority of the farming population are practically precluded from the benefits supposed to be conferred on the farming community at large by the bank, so that the loans made by the bank go generally to manufacturers and comparatively very seldom to agriculturists.

It ought to be added that the maximum limit of interest is to be determined with the approval of the Minister of Finance.

B. Local Hypothec Banks:—Started in the same year as their bigger brother and at the rate of one to each administrative locality, the Local Hypothec Banks are joint-stock companies

with a capital of not less than 200,000 *yen*. As set forth in the explanation of the Law relating to Local Hypothec Banks, the latter aim at supplying funds to farmers of the middle and lower classes, and even to making loans on credit when applications come from organized bodies. These banks number 46 in all and are also subject to the supervision of the Minister of Finance, and enjoy in return no small assistance from the Treasury. The loans to be made are restricted to the following objects :—

1. Reclamation of land, irrigation, drainage, and improvement of the fertility of the soil.
2. Construction of farm roads and the improvement of such roads.
3. Settlement in newly reclaimed places.
4. Purchase of seed, young plants, manure and other materials required in agriculture and industry.
5. Purchase of implements, and machines, boats, waggons and beasts for use in farming and manufacture.
6. Construction or repair of buildings for use in farming and manufacture.
7. Improvements in farming and manufacture not included in the foregoing clauses.
8. Re-arrangement of farm-boundaries.
9. Undertakings by Credit Guilds, Purchases Guilds, and Produce Guilds of unlimited liability and organized under the Industrial Guilds Law.

10 The loans to be made for the foregoing objects are under these conditions :—

LOANS.

Loans on Real Estates.

1.	Payments by yearly instalments ...	Within 30 years.
2.	Payments within fixed period	Within 5 years, the aggregate sum of the loans not to exceed $\frac{1}{5}$ of that of loans payable by instalments.

Loans on Credit.

1.	Payments by yearly instalments ...	Within 30 years.
2.	Payments within fixed period... ...	Loans payable within 5 years; and loans with no such restriction.

Loans on credit and payable by instalments can be made only

to municipal corporations, towns or villages, and public bodies organized under law, while loans on credit with payment within fixed period may be made only under these conditions :—

Repaid within 5 years.

1. To municipal and other civic corporations or public bodies organized under law.
2. To joint applicants of not less than 20 persons who are judged thoroughly trustworthy, and who are engaged in agriculture or manufacture.
3. To Credit Guilds, Purchase Guilds, and Produce Guilds of unlimited liability.

Though such banking facilities are available to the farming classes, the latter are as yet unable to enjoy to any satisfactory extent the benefit accruing from those facilities, chiefly because most of our farmers possess only limited means at their disposal, and because loans are necessarily accompanied by elaborate processes.

C. Credit Guilds.—Herein comes the necessity of some method which will allow even small farmers to obtain loans, and it was to supply this want that the Credit Guilds, one of the Industrial Guilds referred to above, was organized the object of its establishment being, as the provisions in the Law relating to Industrial Guilds proclaim, to supply to members of the Guilds, the funds required for developing the business of the members, and also of furnishing them with a means of saving. The Credit Guilds, therefore, may be compared with the Peoples' Banks existing in Germany.

The Credit Guilds are distinct in nature from the Central and Local Hypothec Banks and indeed from all banks, in that those guilds are, like the trade unions existing in England and elswhere, intended to promote the common interests of the members, who while obtaining for their own use funds at low rate of interest, are also entitled to participate in the proceeds arising from the investment of the capital of the organization. The members are therefore obliged to contribute to the capital. The guilds of unlimited liability may also procure loans from the local Hypothec Bank or from other quarters.

Though only a few years have elapsed since the coming into operation of the law under which the Credit Guilds are organized, their number has already reached 300 throughout the country, and there is a prospect of their growing far more numerous. It is not possible to describe here at any length the result of the working of these petty democratic banks and it is enough to say that even in places where bankers generally exact interest at the rate of 20 per cent. or so from ordinary clients and as high as 30 to 40 per cent. from small farmers, the guild furnishes loans to its members at about 10 per cent.

D. The Hokkaidō Colonial Bank :—The condition of affairs in Hokkaidō being distinct from that in the other parts of Japan proper, and especially owing to the abundance of waste land to be reclaimed and the comparative scantiness of the population, special banking facilities are required for expediting the exploitation of the resources of the island. To supply this want the present bank was established in the 32nd year as a joint stock company with a capital of 3 million *yen* and for the term of 50 years. This term may be prolonged, subject to the approval of the Government. The kinds of business which the bank deals are of the following description :—

1. Loans on real estate payable by yearly instalments within 30 years.
2. Loans on real estate payable within 5 years according to fixed period payment system.
3. Loans on shares and debentures of joint stock companies engaged in the opening up of virgin land in Hokkaidō, also to subscribe to debentures issued by such companies.
4. Loans on Hokkaidō products and advances on goods.
5. To accept deposits and custody of objects of value.
6. Loans on credit payable by yearly instalments or within fixed periods to municipal and other civic corporations established under the Hokkaidō civic corporation system and also to legally organized public bodies in Hokkaidō.

The aggregate amount to be invested in business coming under No. 3 may not exceed 1/5 of the total loans coming under clauses 1 and 2.

The Government has subscribed about 1,000,000 *yen* to the capital of the bank, and in return for this help it regulates during the space of not more than 30 years from the establishment, the rate of interest on loans advanced on real estate and payable by yearly instalments.

Only a few years having elapsed since the starting of the bank, it is not yet possible to give any definite data as to the result of its work. That the result has been beneficial admits, however, of no doubt.

IV. LABOR.

Farming Population and Households:—Though exact figures as to the farming population in our country cannot be obtained, the returns in the 34th year put the total population at 28,000,000 with 4,800,000 households approximately. In other words the farming population constitutes a little over 60 per cent. of the whole population and the number of farmers' households is a little less than 60 per cent. of the total number of households.

The farmers' households contain on an average 5.8 persons, of whom 2.5 persons may be regarded as of an age to do effective work. According to this estimate, the number of the farming community of an age to work may be reckoned at 22,000,000. As this number contains landowners who generally lease their land to tenant-farmers the actual number of people working on the farms must be somewhat less than the foregoing figures.

Tillage Land and Farmers:—At the end of the 32nd year the land under tillage covered altogether about 5,000,000 *cho* of which 2,745,000 *cho* were wet farms and 2,286,000 *cho* were upland farms. The total area being compared with the total number of farming families, the average area of tillage land corresponds to about 1 *cho* per family, the ratio per working man is only 4 *tan* approximately. It may easily be inferred therefore that tillage is mainly carried on by manual labor.

The number of working people required in preparing the land for the various crops and in gathering in those crops—working, of course, according to the methods ordinarily in vogue in this country may be roughly estimated as follows:—

WORKING PEOPLE PER "TAN."

	Men.	Women.		Men.	Women.
Rice	17	9	Rape	10	9
Barley	11	6	Beans	7	5
Wheat	11	6	Indigo	18	12
Rye	12	6	Tobacco ...	25	23
Buckwheat ...	8	3	Cotton	15	19

Demand and Supply of labor:—According to inquires carried out in the 21st year in 38 prefectures, of the agricultural families in Japan 55 per cent. cultivated less than 8 *tan* each, 30 per cent. between 8 *tan* to 1 *cho* 5 *tan*, and only 15 per cent. cultivated over 1 *cho* 5 *tan* each. From this datum it is easy to see that farming on a large scale and by the employment of a large number of people is exceptional. It is only in special cases, such as in the season of sericulture or of the curing of tea, that a large number of hands are engaged. Our farmers are generally therefore their own laborers, and farm laborers who make it their regular business to work on land owned by others form an insignificant portion of the farming community. There are, it is true, a very small number of petty farmers who may be open to engagement when the work on their own fields is slack. In the height of the farming season, too, such as the season of the planting or gathering in the rice, neighbors assist each other, and thus supplement the mutual deficiency of hands. As things stand, therefore, except in the limited number of places where manufacturing is being actively carried on or where emigration either abroad or to other parts of Japan is temporarily draining the country of a large proportion of its able-bodied men, there is no likelihood, at least for the time being, of any lack of farm hands being experienced.

Condition of engagement:—Farm laborers may, like other kinds of laborers, be divided into those who are engaged by the year and those who are engaged by the day. The farm laborers generally live in the residences of their employers who, besides supplying them with board also give them clothes twice a year. In some cases laborers are engaged under the special condition of working one day in their employers' service, to attend the next day to their own work, thus attending to the employers' and their own work on alternate days.

Lads are also engaged for the term of 5 or 7 years, and these therefore stand to their masters somewhat in the relation of apprentices to employers. During the term of contract they get their board, clothing and whatever else is a necessity of life from their employers, but very rarely do they get regular wages. Day laborers are of course engaged by the day, and their wages vary according as they bring their own food or are fed by their employers. Very rarely are day laborers contracts laborers. Then some are engaged by the month or during some special period, such as the season of sericulture and other work. There are also some work-people who job work and get paid according to the amount of the work done.

Wages :—According to the official returns, the average wages of farm laborers were as follows, in the 33rd year :—

	Males.	Females.
	sen.	*sen.*
Day laborer on farm	29.5	19.0
Day laborer in sericulture	30.8	19 3
Operative for reeling silk	—	20.0
Farm laborer engaged by the year	32.12 *yen*	17.06 *yen*

In the foregoing table laborers engaged by the year alone get board. The wages, it may be added, vary somewhat according to districts and seasons, and while some men engaged by the year get as much as 85 *yen* in one place, in others the pay is only 7 *yen*. The day laborer employed in sericulture sometimes gets 1 *yen* a day during the height of the season.

Wages in general show a tendency to advance, as the following figures based on the wages ruling in the 20th year will show, those wages for the 20th year being adopted as to standard unit (100).

	32nd year.	30th year.	25th year.
Day farm laborer (men)	214	204	112
„ „ (women)	238	199	118
Day sericultural laborer (men)	208	181	117
„ „ „ (women)	199	176	123
Silk-reeling operatives	182	166	122
Farm laborers by the year (men)	166	150	Wages for the 27th year taken as standard.
„ „ „ (women) ...	170	156	

Wages are in most cases paid in cash, though to some extent payment is also made in food or clothing.

Emigration of farmers:—As shown in the chapter on Population the emigration of the rural population to the cities and towns has grown somewhat striking, and though this emigration does not yet show itself in an absolute decrease of the rural population, there can be no doubt that if this migrating tendency becames aggravated the evil of a lack of hands, such as that complained of in England, may take place. In Hokkaidō alone, during the 5 years ending the 33rd year 143,554 farmers settled there, coming from other parts of the country.

CHAPTER III.—Agricultural Products.

General Remarks—Food-Stuffs—Products for special use—Horticultural Products.

I. GENERAL REMARKS.

THE general tendency of our agricultural industry is to change gradually for the better, as the following data on the staples will prove.

I.

COMPARATIVE TABLE OF YEARLY ACREAGE OF STAPLE FOOD STUFFS

(fractions below decimal represent *tan* in this and other tables).

	10th year.	15th year.	20th Year.	25th year.	30th year.	34th year.
	cho.	*cho.*	*cho.*	*cho.*	*cho.*	*cho.*
Ordinary rice	2,443,833.6	2,357,729.9	2,391,912.6	2,440,311.1	2,457,682.1	2,497,599.1
"Mochi" rice	214,961.9	233,813.4	215,701.1	268,294.6	267,472,0	270,051.5
Upland rice	—	—	29,571.1	46,496.2	62,027.2	79,855.0
Barley...	503,172.4	602,857.5	625,777.4	635,266.6	653,266.6	639,884.0
Wheat...	176,563.3	373,024.8	390,460.6	434,251.1	458,239.2	487,307.2
Rye	282,314.2	488,062.5	575,104.9	649,855.3	651,448.5	680,579.8
Beans	188,233.1	—	466,315.2	443,442.3	435,604.8	473,952.2
Red beans...	—	—	—	—	109,280.7	129,316.8
Millet...	140,847.2	—	243,407.1	239,470.4	250,387.7	228,523.5
Sorghum	—	—	27,311.3	27,338.5	27,674.9	36,950.7
Italian millet... ...	—	—	87,167.3	90,528.6	74,567.6	67,856.5
Buckwehat...	—	—	158,409.9	161,879.9	174,138.2	165,996.9
Sweet potatoes... ...	—	—	221,520.4	243,180.1	259,166.7	268,985.7
Potatoes	—	—	16,493.2	21,961.5	28,996.0	38,861.6

II.

STAPLE PRODUCTS FOR SPECIAL USE.

	20th year.	25th year.	30th year.	34th year.
Cotton	98,478.9	71,431,6	44,444.0	24 121.2
Hemp	14,840.4	18,972.5	22.349.7	17,576.9
Indigo leaves ...	50,257.4	44,049.5	50,712.3	40,742 8
Tobacco leaves ...	21,803.5	29,059.0	31,477.5	24,447.7
Rape	167,295.1	171,795.0	154,167.0	163,896.2

It will be seen from the foregoing tables that the area of cultivation of the staples is showing on the whole a satisfactory

increase. Especially is this the case with beans, sweet potatoes, and potatoes, among the staple food stuffs, and hemp and tobacco among the staples for special use. The striking exception is the decrease in the area of the cotton plantations in consequence of the recent large import of foreign cotton. Our sugar industry has also suffered somewhat from foreign competition but it has lately began to recover its former prosperity, especially since our annexation of Formosa. Here are the figures showing the output.

	kwamme.
11th year	7,424,819
15th „	9,696,522
20th „	9,904,901
25th „	10,120,871
30th „	9,550,489

Again, except for some staples of less importance the yield from the same area has become increased, thanks to the better methods that have of late obtained in farming, as :—

(1) COMPARATIVE YIELD OF STAPLE FOOD-STUFFS PER *TAN*.

	20th year. *koku.*	25th year. *koku.*	30th year. *koku.*	34th year. *koku.*
Ordinary rice	—	1.526	1.209	1.686
"Mochi" rice	—	1.410	1.076	1.513
Upland rice	—	0.781	0.706	0.902
Barley	—	1.042	1.255	1.384
Wheat	—	0.708	0.832	0.898
Rye	—	0.932	0.946	1.072
Soja Beans	0.698	0.701	0.712	0.859
Red Beans	—	—	0.566	0.715
Millet	1.058	1.260	0.957	1.122
Italian millet	1.265	1.250	1.081	1.316
Sorghum	1.005	1.022	0.941	1.041
Buckwheat	0.705	0.714	0.569	0.719
Sweet Potato (*kwamme*) ...	253	234	256	265
Potato („)	172	184	202	190

Note :—The crop of rice in the 30th year was a failure.

(2) COMPARATIVE YIELD OF STAPLES FOR SPECIAL USE PER *TAN*.

	20th year. *kwamme.*	25th year. *kwamme.*	30th year. *kwamme.*	34th year. *kwamme.*
Cotton	23	18	16	19
Hemp	16	14	16	17
Indigo leaves...	31	35	38	32
Tobacco leaves	27	26	28	32
Rape (*koku*)	0.682	0.598	0.656	0.739

(3) COMPARATIVE TABLE OF AGGREGATE OUTPUT OF FOOD-STUFFS.

		10th. *koku.*	15 h. *koku.*	20th. *koku.*	25th. *koku.*	30th. *koku.*	34th. *koku.*
Rice.	Ordinary	24,438,336	27,875,072	36,675,775	37,276,606	29,722,736	42,108,350
	Mochi	2,149,619	2,525,957	3,100,153	3,789,712	2,878,944	4,086,070
	Upland	—	—	223,271	363,259	437,613	720,521
	Total	26,587,955	30,401,029	39,999,199	41,429,676	33,039,293	46,914,943
Mugi.	Barley	5,031,724	5,817,719	7,101,643	6,811,899	8,028,698	8,970,973
	Wheat...	1,765,633	2,425,186	3,041,740	3,078,832	3,811,000	4,375,371
	Rye	2,823,142	4,379,667	5,678,661	6,165,792	6,165,792	7,293,863
	Total	9,620,499	12,622,572	15,822,044	15,951,146	1,800,973	20,640,207
Soja beans		1,882,331	2,351,156	3,253,790	3,110,665	3,110,973	4,069,619
Red beans		—	—	—	—	618,804	924,573
Millet...		1,318,112	1,633,867	2,574,850	3,016,678	2,395,158	2,563,422
Sorghum		170,834	178,027	274,562	278,259	260,414	384,619
Itallian millet		997,416	1,012,291	1,102,607	1,131,570	806,274	892,947
Buckwheat		527,391	690,542	1,117,041	1,156,261	990,195	1,193,549
Sweet potatoes (kwam.)...		597,447,531	308,422,169	561,407,587	568,371,606	662,391,590	711,639,519
Potatoes (kwam.)		6,000,693	12,561,342	28,382,572	40,491,431	58,523,287	73,682,653

(4) COMPARATIVE TABLE OF AGGREGATE OUTPUT OF SPECIAL STAPLE CROPS.

	20th.	25th.	30th.	34th.
Cotton (*kwamme*)	22,388,590	12,584,822	7,304,253	4,468,581
Hemp (,,)	2,396,856	2,745,802	3,569,159	2,994,028
Indigo-leaf (,,)	15,424 412	15,447,822	19,415.593	13.223,148
Tobacco-leaf (,,) ...	5,987,359	7,643,203	8,871,370	7,820,206
Rape (*koku*)	1,143,035	1,026,572	1,011,004	1,210,649

In inquiring into the acreage of mulberry and tea fields which are vitally related to our two export staples, silk and tea, that of the latter, in contrast to that of the other, shows a striking falling off. One consoling fact is that the output of tea shows an increase, due, principally, to the improved mode of curing.

TABLE SHOWING THE YEARLY AVERAGE OF MULBERRY AND TEA FIELDS.

	Mulberry.		Tea.	
	cho.	*tan.*	*cho.*	*tan.*
25th year	231,437.	7	60,699.	7
30th ,, ...	298,203.	9	58.892.	1
34th ,, ...	303,459.	4	48,848.	2

TABLE SHOWING THE YEARLY OUTPUT OF COCOONS AND TEA.

	Cocoons. *koku.*	Tea. *kwamme.*
11th year	942,198	2,761,522
15th ,, ...	1,328,035	6,514,678
20th ,, ...	1,219,060	7,011,221
25th ,, ...	1,480,705	7,211,865
30th ,, ...	2,121,944	8,471,956
34th ,, ...	2,526,181	—

Fruit culture and gardening have made a striking advance recently.

Live stock do not yet show any marked development in number, but there has been a great improvement in their quality. The measures for improving both the quality of the live stok and increasing their number that are now being carried out, will not fail to bear fruitful result in the near future. Dairy business is an industry of only recent growth, but its result is entirely satisfactory.

Below will be shown the number of cattle and horses during the last 20 years:—

Year.	Cattle.	Horses.
11th	1,080,886	1,545,283
15th	1,160,147	1,644,165
20th	1,020,509	1,537,606
25th	1,094,797	1,554,667
30th	1,214,159	1,592,871
34th	1,282,341	1 533,173

The gross value of the staple agricultural products as calculated on the recent market price is as follows:—

	yen.
Rice	445,439,087
Mugi	124,064,274
Beans	35,952,282
Others	153,872,649
Straw	86,982,360
Cocoons	93,618,991
Silkworm eggs	3,844,126
Mulberry twigs and Silkworm litters... ...	7,953,103
Cured tea	9,037,545
Live Stock (cattle, horse, sheep, swine) ...	4,953,533
Slaughtered beast	12,540,394
Cattle and horses killed by disease	256,831
Dairy products	4,128,017
Staple manure	23,672,628
Poultry and eggs	17,281,419
Total	1,023,587,239

Such is the general states of our agricultural industry, and in inquiring into the relation between supply and demand of our principal agricultural products, it is observed that though in food stuffs the supply at home can generally satisfy the demand, this is not always the case with regard to the raw materials used for industrial purposes, as cotton, hemp, etc. These come, therefore, to no small extent from foreign countries.

II. FOOD-STUFF.

1. Rice :—There are two varieties of rice, ordinary rice (Oriza utilissima, Kcke) and "*mochi*" rice (O. glutinose, Lour). Both are cultivated in wet and upland fields. The ordinary rice may be considered as the rice, for it constitutes the bulk of the output of this staple cereal. Is is used as ordinary diet and also for brewing the national beverage of *sake*, while the other rice is used for making rice dumplings (*mochi*) and is therefore very limited in use.

Rice being cultivated in every place where its cultivation is possible, from Hokkaidō in the north to Formosa in the south, the area under cultivation is immense as may be seen from the following table.

AREA (FRACTIONS BELOW DECIMAL ARE *tan*) OF CULTIVATION AND OUTPUT OF RICE.

Year.	Acreage.	Output.
	cho.	*koku.*
25th...	2,760,662.1	41,429,676
26th...	2,775,233.9	37,267,418
27th...	2,736,494.6	41,859,047
28th...	2,784,682.5	39,960,798
29th...	2,792,499.4	36,240,351
30th...	2,787,181.3	33,039,293
31st	2,817,624.0	47,387,666
32nd...	2,839,550.2	39,698,258
33rd	2,828,479.3	41,466,734
34th...	2,847,505.6	46,914,943

The principal centres of rice cultivation are Niigata, Hyogo, Fukuoka, Aichi, Chiba, Toyama, and Fukushima. Both the acreage and output will become larger with the improvement of farming and the completion of various improvement measures.

2. Mugi :—*Mugi* which collectively designates in Japanese barley, wheat and rye is the staple product for upland fields as rice is for wet fields. Barley and wheat are also cultivaled in wet fields as the second crop after rice. Their cultivation is universal, but that of rye is generally in the region of Kinai and in the more southern districts. Barley and rye are used as food stuffs by farmers, who use them with rice. They are also used to some extent as food for cattle and horses. Wheat is used in manufacturing soy and for making confectionary and various sorts of maccaroni, except buckwheat maccaroni for which buckwheat flour is used. The flour made of Japanese wheat is however not quite so good for bread and superior kinds of confectionary, and for those purposes the American flour is extensively imported. In a similar way our barley is not so well adopted for making malt for beer, and an attempt has been made with some success to cultivate in Japan certain varieties of foreign barley. The acreage and output during the last ten years are shown below :—

	"Mugi" Acreage.				Output (koku).			
	Barley.	Rye.	Wheat.	Total.	Barley.	Rye.	Wheat.	Total.
25th	653,860.8	650,419.2	435,246.9	1,739,526.9	6,811,899	6,811,899	6,060,415	15,951,146
26th	654,384.5	654,445.6	437,527.4	1,746,357 5	7,193,870	6,148,004	3,294,714	16,636,588
27th	648,948.1	661,911.0	442,550 7	1,753,409.8	8,533,267	7,316,194	3,972,539	19,822,000
28th	654,155.8	672,166.2	447,836.8	1,774,159,8	8,541,122	7,107,777	3,978,941	19,537,840
29th	651,431.1	672,286.5	443,325.6	1,767,043.2	7,853,567	5,927,487	3,559,412	17,340,466
30th	639,884.0	651,448.5	458,239.2	1,749,571.7	8,028,698	6,165.792	3,811,000	18,005,490
31st	659,695.5	681,364.0	435,607.9	1,806,667.4	8,913,560	7,366,605	4,181,888	20,462,053
32nd	657.216.1	687,274.6	465,331.9	1,809,822.6	8,512,725	6,682,021	4,141,205	19,335,952
33rd	644,529.5	692,999.1	468,468.2	1,805,996.8	8,659,487	7,495,336	4,236,850	20,391,673
34th	647,859.6	678,042.2	486,884.9	1,812,786.7	8,949,321	7,225,594	4,347,035	20,521,950

The principal *mugi* districts are Hokkaidō, Saitama, Ibaragi, Aichi, Fukuoka, etc. Especially in Hokkaidō the growth of *mugi* is excellent owing to comparatively small rainfall during the ripening season.

3. Beans :—The use of beans is extenive in Japan. They are used as subsidiary article of diet, also as food for cattle, and as manure. A large import of beans and pancakes from China and Korea explains their extensive use in Japan. Beans of superior quality are largely grown in Hokkaidō, and they are also extensively cultivated in Saitama, Ibaragi, Nagano, Miyagi, etc. There are two principal varieties, namely shoja beans and red beans, and both

are cultivated during the seasons intervening between the different crops of cereals. The latter is used for making confectionary, etc.

ACREAGE AND OUTPUT.

Year.	Shoja Beans.		Red Beans.	
	Acreage (*cho*).	Output (*koku*).	Acreage (*cho*).	Output (*koku*).
27th	435,852.3	2,943,478	101,428.9	560.277
28th	431,240.4	3,163,683	105,630.7	615,675
29th	440,780.2	2,999,490	103,957.7	576,724
30th	435,604.8	3,100,973	109,280.7	618,804
31st	482,044.1	3,108,708	112,313.6	654,885
32nd	455,601.2	,410,693	120,675.0	822,775
33rd	457,673.7	3,562,176	122,786.1	866,448
34th	473,952.2	4,069,620	129,316.8	924,573

4. Millets, Sorghum, Buckwheat :—Millets are cultivated in the hilly districts and are used as food, being eaten mixing with rice. Sorghum is used for making dumplings and backwheat for making maccaroni.

ACREAGE.

Year.	Millet.	Italian millet.	Sorghum.	Buckwheat.
27th	235,164.2	84,144.4	26,286.9	172,334.0
28th	247,276.7	77,228.9	26,295.3	175,991.8
29th	248,131.7	75,124.4	28,156.8	171,215.5
30th	250,387.7	74,567.6	27,674.9	174,138.2
31st	245.641 3	77,366.3	31,683.5	180,039.6
32nd	238,742 0	76,618.8	35,741.8	176,144.4
33rd	245,738.6	72,538.3	34,414.1	168,996.0
34th	228,523.5	67,498.8	36,950.7	165,996.9

OUTPUT.

Year.	Millet.	Italian millet.	Sorghum.	Buckwheat.
27th	2,144,839	.209	250 474	1 202,372
28th	2,331,506	923,-	243,066	1,192,377
29th	2,548,45	912,154	245,734	1,090,254
30th	2,395,158	806,274	260,414	990,195
31st	2,626,588	901,472	291,852	1,192,807
32nd	2,217,154	861,318	377,768	999,410
33rd	2,487,187	864,601	384,452	1,285,394
34th	2,563,423	899,929	384,618	1,193,506

The ordinary millet is grown in larger quantities in Kyūshū than in colder districts and Italian millet is found more in the colder districts than in Kyūshū. Sorghum is chiefly grown in

Hokkaidō, Aichi, Gifu, etc. and buckwheat in Kagoshima, Kanagawa, Ibaragi, Nagano, Iwate, Aomori, etc.

5. Sweet Potatoes:—This root-crop is raised as food-stuff both for men and beasts, also for brewing liquor and making starch. It is extensively grown in Kyūshū and Loochu.

Year.	Acreage. (*cho.*)	Output. (*kwamme.*)
27th	238,942.9	495,948,701
28th	340,797.0	711,813,132
29th	255,655.2	725,942,023
30th	259,166.7	662,391,590
31st	267,252.3	716,956,146
32nd	268 070.5	661,444,862
33rd	271,440.4	756,935,532
34th	271,993.7	711,643,810

6. Potatoes:—Potatoes are used in Japan for food both for men and beasts and for making liquor and starch. It is grown extensively in Hokkaidō and other districts.

Year.	Acreage. (*cho.*)	Output. (*kwamme.*)
27th	23,116.3	49,752,993
28th	23,314.4	44,273,903
29th	25,276.9	44,220,605
30th	28,996.0	58,528,287
31st	36,598.6	34 088,550
32nd	37,650.6	64,594,705
33rd	38,261.8	71,775,433
34th	38,861.6	32,731,849

The acreage was only 8,850 *cho* in the 15th year, and it reached about 40,000 in the 34th. The root grown in Hokkaidō largely goes to Siberia and Australia, and is of superior quality. The appearance of the potato blight in the 33nd year in the districts lying about Tokyo inflicted serious damage on the crop. The disease is about to be stamped out.

III. FARM PRODUCTS FOR SPECIAL USE.

1. Rape:—Rape is grown everywhere in Japan as the second crop after rice or other crops.

The rape-seed oil was universally used formerly for purposes of illumination, and even now this is still the case in remote corners

of the land. The oil is now largely exported abroad, where it is used as a lubricant. The value of rape-seed cake as manure is universally appreciated and is largely consumed.

This crop is cultivated in all these districts where the second crop is possible, and also in Hokkaidō.

The acreage and output are as fellows:—

Year.	Acreage. (*cho.*)	Output. (*koku*)
27th	152,400 2	1,006 581
28th	158,858.2	969,917
29th	157,738.8	971,198
30th	154,167.0	1,011,004
31st	150,825 9	1,079,594
32nd	148,663 3	1,114,614
33rd	153,069.5	1,193,839
34th	153,896.2	1,210,639

2. Indigo:—The indigo-plant is a special product of Shikoku, especially Tokushima prefecture where the growth of this crop was encouraged by the local government during the Pre-Restoration period. It is of the variety of Polygonum. Since the introduction from abroad of a cheaper and more convenient indigo, the sale of home-grown indigo has somewhat declined. But the native indigo still retains a fair sale owing to the permanent nature of the dye; and especially since a new mode of preparing indigo in a less costly way was discovered a few years ago by a Japanese expert, the industry has began to recover its former prosperity. In Loochu and Formosa a special variety of indigo is produced.

The acreage and output during the last few years are as follows:—

Year.	Acreage. (*cho.*)	Output. (*kwamme.*)
27th	46,851.7	16,087,377
28th	49,079.0	17,373,344
29th	49,190.3	17,918,863
30th	50,712.3	19,415,593
31st	48,872.4	17,758,510
32nd...	47,824.8	17,044,410
33rd	46,180.4	16,582,230
34th	41,390.7	14,611,721

The principal places of production are Tokushima, Aichi, Fukuoka, Okinawa, Saitama, Miye, etc.

3. Tobacco :—The cultivation of tobacco was formerly carried out, partly with the object of selling the leaves and partly with that of supplying tobacco for home consumption. The leaves in those days were exclusively used as cut tobacco and never as cigars or cigarettes. With the advent of the Tobacco State Monopoly in the 31st year, a radical change came over the economy of this crop, and the cultivation is now subject to strict official supervision, while at the same time special pains are taken for improving the quality.

Here are the figures representing the acreage and output during the last few years :—

Year.	Acreage. (*cho.*)	Output. (*kwamme.*)
27th	35,393.8	9,541,304
28th	35,135.1	8,873,911
29th	32,519.2	8,393 507
30th	31.477 5	8,871,370
31st	29,450.8	9,302,560
32nd...	41,647.2	10,609,531
33rd	37,182.8	10,846,452
34th	24,747.6	7,822,601

Ibaragi, Tochigi, Kagoshima, Kanagawa, Fukushima, Okayama, Aichi, Hiroshima, Kumamoto, Shizuoka are the chief centres of the tobacco crop.

4. Sugar cane :—This industry is not so flourishing as it was formerly, or, more properly speaking, it has not succeeded in keeping up with the progress of the times. Its prosperity in the province of Sanuki, formerly the largest centre of production, has declined very much owing to the comparatively higher cost of production as compared with that in foreign countries. The beet-root cultivation started some time ago in Hokkaidō has not been a success. The consumption of sugar has been largely increased recently, and naturally the import of this article of diet now reaches enormous figures. However, as the industry is steadily growing extensively in Formosa, Loochu and Kagoshima, the output of home-made sugar may soon show a striking increase. The returns for the last two years are as follows :—

Year.	Acreage. (*cho.*)	Output. (*kwamme.*)
33rd	23,170 2	154,181,460
34th	24,744.7	134,278,261

5. Rushes:—The cultivation of various varieties of rushes is extensively carried on in Hiroshima, Okayama, Fukuoka, Ōita, Okinawa, Kagoshima, etc., as they are in enormous demand for the making of mats which are universally used in Japanese houses, where they take the place of the carpets of Western houses. The export of fancy matting is also active.

6. Cotton:—Cotton is another crop that has suffered from foreign competition especially since the growing activity in the spinning business, for the fibres of home-grown cotton are shorter while the goods themselves are more costly than their imported rivals. These principally come from India, China, and America.

The following table will show the vicissitudes which this crop has experienced during the last eight years.

Year.	Acreage. (*cho.*)	Output. (*kwamme.*)
27th	60,564.0	12,572,971
28th	55,541.0	10,488,569
29th	51,042.5	7,422,061
30th	44,444.0	7,034,253
31st	40,288.1	7,280,530
32nd...	33,773.2	5,231,955
33rd	28,262.2	4,894,322
34th	23,893.4	4,432,238

. Ōsaka, Hiroshima, Saitama, Tottori, Aichi, etc. are principal centres of produce.

7. Hemp:—The cultivation of hemp was formerly more active than it is now, for with no foreign rival to compete with it, its extensive use for weaving fabrics, making fishing nets, etc. The appearance of Chinese and Indian hemp in the market has considerably affected the former prosperity of the home industry, as may be seen by a glance at the following table:—

Year.	Acreage. (*cho.*)	Output. (*kwamme.*)
29th	20,948.6	3,224,094
28th	22,050.4	3,366,784
29th	22,629.2	3,285,730
30th	22,349.7	3,569,159
31st	25,188.0	3,775,917
32nd	17,910.6	2,921,954
33rd	18,203.0	2,652,774
34th	17,576.9	2,994,028

Hokkaidō, Tochigi, Hiroshima, Miyazaki, Shimane, etc. are the principal districts in which the cultivation of this crop is carried on.

8. Flax :—Flax fibres are largely used for weaving light stuff for summer wear, and the flax fabrics produced at Echigo and Loochu enjoy a great reputation from former times. The cultivation is chiefly carried on in those districts as also in Yamagata, Fukushima, etc.. The business is sure to attain a greater development in future.

9. Stalks for Straw Braids:—The preparation of straw braids in the prefectures of Tokyo and Okayama is an important minor industry on account of the work it gives to the women and children, especially since the braids have begun to go abroad.

10. Mint :—Mint is cultivated in Yamagata, Okayama, Chiba, etc., for making mint essence to be used for medical and other purposes. The foreign demand has contributed to the activity of the cultivation of this subsidiary crop. Yamagata is most noted for its produce of mint.

11. Ginseng :—This medical root was cultivated formerly in such districts, as Nikko, Aizu, and Izumo, but, owing to the fact that as a medicine it has lost favor among doctors of the modern school, the prosperity of the business has markedly declined. Its principal market is China, whither the roots are also imported extensively from Korea and even from America. The cultivation and the curing of the roots being rather tedious and costly work, the output is extremely limited. Fukushima, Nagano, Shimane, Tochigi, and Yamagata are the principal districts for this root.

12. Paper Mulberry Trees :—The fibres of this tree or rather shrubs, are used extensively for manufacturing paper which though not very smooth, is characterized by toughness. Being a hardy plant the trees can be planted almost everywhere and mostly in waste land. Kōchi, Toyama, Yamaguchi, Ehime, Hiroshima, etc. produce large quantities.

13. "Mitsuma" (Edgeworthia Papylifera) :—This shrub is also largely used for manufacturing paper, which is smoother though weaker in texture than that made of the other. Since the process of strengthening the texture has been devised by our Printing Bureau the paper made of the fibre of this shrub has come to

be highly valued in foreign countries where it is exported to a large extent. The shrubs are grown in shady places, and are extensively planted in Shizuoka, Yamanashi, Kōchi, Kanagawa, etc.

14. Basket-Willow :—The growing of willow for making baskets, etc., is actively carried on in the province of Tajima. The process of raising the twigs is very simple, for a slip easily takes roots. The cultivation of the shrubs and the industry of basket-making have been started in other places, notably in Kōchi.

IV. HORTICULTURAL PRODUCTS.

1. Fruit :—As the food-stuffs that are ordinarily used by our countrymen contain a large percentage of water, the Japanese have not up to the present used fruit much as dessert. Moreover, deterred by the imperfect facilities of transportation, the business of fruit culture was comparatively neglected. It was after the introduction of the Western style of living and the greater perfection of the means of communication that the industry attained a sudden development. The production of an excellent sort of apple in Hokkaidō and the north-eastern districts of Honshū, as also the successful growth of fruits of the orange family in Kyūshū and other warm districts are among the results of these changes. Indeed Japan is now exporting to America and Siberia no small quantity of fruits, and there is every possibility of the business of fruit-culture growing more and more prosperous, both for consumption at home and for shipment abroad.

From the geographical formation of the country, the fruits grown in Japan are of diverse kinds, and may generally be classified as follows :—

Fruits of the orange family. Mandarin oranges and other oranges, lemons, prunelo, etc.

Apple, pears, cherries, persimmons, plums, grapes, peaches, apricots, loquats, berries, bananas, pine-apples, etc.

The above are distributed geographically as follows :—

Oranges :—Wakayama, Kagoshima, Ōsaka, Yamaguchi, Shizuoka, Hyogo, Nagasaki, etc.

Apples :—Hokkaido, Aomori, Iwate, Yamagata, Miyagi, Fukushima, etc.

Grapes :—Yamanashi, Niigata, Kanagawa, etc.

Cherries :—Hokkaido, Akita, Yamagata, etc.

Bananas and Pine-apples :—Formosa, Loochu, and the Bonin Islands.

Pears, persimmons and the rest are grown more or less in every part of the country.

Of those fruits some are of native origin and others are imported. Apples, pears, grapes, cherries, strawberries, etc. that have been introduceed from America and other countries are held in great esteem, and have practically superseded the indigenous varieties.

2. Flowers and Garden plants:—From natural taste and traditional custom, our countrymen are very fond of flowers and ornamental plants and trees. They spare neither pains nor money on the decoration of even miniature gardens with fantastic rocks and well-shaped trees and plants, but they pride themselves most on their skill in growing dwarf trees and shrubs in pots. Nor do they care less about the cultivation of such flowering plants as the crysanthemum, the peony, morning-glory, etc. Perhaps we should say, however, that this business partakes somewhat of the nature of art and is not directly related to agriculture so that it is sufficient to enumerate here the principal flowers of the season. There are :—

Spring flowers :—Cherry, peach, azalea, peonies, lilies of various kinds, pink, hydrangea, crysanthemum, etc.

Summer flowers :—Morning-glory, bush-clover, lotus, crysanthemum, poppies, etc.

Autumn flowers :—Crysanthemum, begonia, orchids, flowers of the gentian family, pink, etc.

Winter flowers :—Crysanthemum, plum, camellia, hayacinth, etc.

3. Kitchen-gardening :—Kitchen-gardening as a business attained marked progress only lately and as a result of the improved facilities of communication. The business of forcing the growth of vegetables by artificial heat has become quite profitable in the suburbs of large cities. The principal vegetables raised are :—

Fruits of the gourd family, peas, beans, etc.

Roots, and bulbs, such as radishes of various kinds, carrots, potatoes, lilies, onions, etc.

Greens of sundry kinds.

Vegetables used for condiments, as ginger, horse-radish, pepper, etc.

4. CURED FRUITS AND VEGETABLES:—This industry is still comparatively primitive, and the cured fruits and vegetables that are prepared to a large extent are of limited kind being generally pickled plums, sugared orange-peels, jams, dried peeled-radish and edible gourd, tinned fruits and vegetables.

In view of the importance of encouraging horticulture, the Govvernment established from the 35th fiscal year (1902-3) the Experimental Horicultural Garden at Okitsu, Shizuoka-ken, to deal with the following matters:—

Matters relating to the selection and cultivation of indigenous and foreign fruits and vegetables.

Matters relating to the selection of seeds and saplings.

Matters relating to preserving, and curing of fruits etc.

Matters relating to the distribution of seeds and saplings.

As similar work has been started by not a few of local experimental farms, our horticultural business will most probably show marked improvement at no distant date.

CHAPTER VI.—Organs for Encouraging Agriculture.

State Experimental Farms—Local Experimental Farms and Training Schools—Agricultural Lecturers—State and Local Sericultural Training Schools—Silk Conditioning House—Tea Curing House—Cattle and Fowls Epidemic Laboratory—Cattle Pastures—Horse Pastures and Studs, etc.

I. STATE EXPERIMENTAL FARMS.

History:—The precursor of the existing State Experimental Farms was the Staple Cereals and Vegetables Experimental Farms that were established in the suburbs of Tokyo by the Agricultural Bureau in Sept., 19th year (1886). Rice, *mugi* (barley and wheat) and rape were cultivated. The farms were at first scattered in different places, and devoted one to the cultivation of rice and the other to that of *mugi*, etc, but in the 23rd year they were removed to Nishigahara, Oji, a suburb of Tokyo, and were amalgamated into one farm covering altogether 2 *cho* 4 *tan* of which a part was leased from the different owners. Coming to April, 26th year (1893) we find that regulations relating to the Official Organization of Experimental Farms had been elaborated. It was at the same time announced that the authorities had determined to establish branch farms of the Nishigahara Farms at Ōsaka, Miyagi, Ishikawa, Tokushima, Hiroshima and Kumamoto. The Head Farm was made to continue experiments that had been originally carried out at the farms, and to further expand their scope. The Branch Farms were opened either in October or November of the 26th year, some of them in time to make preparation for winter field-work.

Soon this arrangement was found to be inadequate for the purpose. This opinion of the Department fortunately coincided with that of the Imperial Diet, for it passed a resolution to the effect that the scope of the experimental farming business

should be expanded. Three more branch farms were consequently established in the 29th year, one in Aichi, the other in Shimane, and the third in Akita: they were respectively styled the Tōkai, San-in and Riku-u Experimental Branch Farms.

Work:—The work of experimental farming is usually divisible into three branches, one of these branches being the work of original researches, the second that of practical application, and the third model-farming. From the characteristic nature of each of those divisions it is proper that the work of original research ought to be undertaken by the State, while that of practical application based on the result of the original researches should be dealt with by each locality, so that the mode of farming best adopted to that locality may be worked out. As to the work of model-farming, this comes properly within the province of a city or a corporation.

This point was perceived from the first by the Department, but owing to the comparative low level of knowledge among our farmers and also to the lack of facilities for carrying out experimental farming in rural localities and by civic corporations, the State Farms had to devote most of their attention to the work of practical application and model-farming, and to have their proper work of theoretical investigation and original researches relatively neglected. Meanwhile, the creation of experimental farms in the provinces followed one after another, especially since the 30th year, till at last 38 such farms were to be found throughout the country, most of them competent to undertake the work of practical application. Consequently the Head Farm and its Branches gradually began to turn their attention more to original researches than they could do before. From the 32nd year the work at the Head Farm was divided into six departments, namely seed and saplings, agricultural chemistry, entomology, vegetable physiology, and general affairs. Later on the two departments of tobacco and horticulture were added, while the compilation of the reports was made more perfect than before. In a similar way the Branch Farms were made, so long as circumstances permitted, to follow the example set by the Head Farm, though the

insufficiency of the funds at their disposal considerably impaired the efficiency of the work.

So far, the Head and Branch Farms have been able to supply sufficient materials for carrying on experiments in practical application at the provincial farms, but as the latter are making steady progress it is doubtful therefore whether so long as matters remain as they are at present, the Head and Branch Farms can always satisfy the local experimental farms with a supply of theory to be practically tested.

Result :—Although it is not possible to explain, owing to the absence of any trustworthy data as to the economy of our farming, to what precise extent the work at the Head and Branch Farms has benefited our farming, still it is not difficult to point out what important parts they have played either directly or indirectly in the economy of our farming, as shown in the following paragraphs.

1. Improvement in the quality and quantity of crops, in consequence of careful selection of seeds has been immense. Starting from the principle that the proper selection of seeds is indispensable to the improvement of agriculture, the State Experimental Farms have taken the utmost pains to inculcate this point on our farmers, by distributing among them *gratis* those seeds both domestic and foreign which they have ascertained to be best suited for cultivation. Between the 27th and the 34th year the distribution thus made amounted to no less than 82,290 items. The distributed seeds are now raised almost everywhere, and the crops obtained from those seeds now constitute the bulk of the exhibits shown on the occasion of local agricultural shows. Some of the most marked results produced by this assiduous care on the part of the State Farms may be enumerated below :—

a. Varieties of rice :—Prior to the establishment of the State Experimental Farms, no accurate date existed to the characteristic merits of the different varieties of rice for wet fields, the relative quantity of harvest yielded by them in a given area and their relative excellence of quality. The experiments conducted by the State Farms have cleared up all those obscure points, and the varieties of rice cultivated to-day are far more uniform than they were before, while

their quality and yield have also been considerably improved.

b. Upland Rice:—The cultivation of upland rice was exceedingly limited formerly as may be seen from the fact that up to the 27th year the area under this variety of rice did not exceed 49,887 *cho.* The example set by the State Farms as to the best varieties to be cultivated in upland fields and the distribution of those seeds among the public have greatly increased the popularity of this particular rice, especially in districts where, owing to the difficulty of irrigation, the cultivation of ordinary rice was not possible. In the 33rd year (1900) the area under upland rice increased to 74,780 *cho* approximately, an increase of over 50 per cent. as compared with the area seven years ago. A further extension of the cultivation is evident.

c. "Mugi" (barley and wheat):—The varieties of *mugi* as previously raised in our country were unsatisfactory both in yield and in quality. After repeated experiments the State Farm distributed all over the country the seeds of the foreign varieties judged best suited for the soil of the country, these being "Golden Melon," "Chevalier," "Tanet," etc. in barley and "Fultz," "Velvet Chaff," "Oregon" and "De Austaralie" in wheat. The *mugi* crops of to-day show a great improvement both in yield and quality.

d. Meadow-grasses:—The meadow-grasses formerly cultivated in our country were exclusively imported varieties, but the experiments conducted at the farms established the important fact that not a few varieties of grass indigenous to the land could by proper care be made to serve the purpose just as well as the imported varieties. The seeds of those particular grasses were therefore distributed widely throughout the country, while some of them, especially one variety belonging to the Order of Leguminosae, even found their way to foreign countries. That variety is, for instance, extensively grown in the United States of America, where it is commonly known by the name of "Japanese clover."

e. Malt barley:—In consequence of the thick husk and general inferiority of quality, the barley originally culti-

vated in Japan was never well suited for brewing beer, and the malt therefore used to come entirely from foreign countries. Indeed the import of this article even exceeded 700,000 *yen* a year. The Farm having, after repeated experiments, determined the varieties best suited for our soil, their seeds were sent all over the country. At present the yield of these particular varieties of barley is not small. The malt made from the barley thus raised is sufficient to supply one or two beer breweries.

f. GREATER CARE IN THE SELECTION OF SEEDS :—The experiment carried out at the Farms have demonstrated to our farmers how important is the selection of seeds in relation to the yield. For instance in the case of rice and *mugi*, the selection made by steeping the seeds in salt water has resulted in increasing the yield by from 10 to 20 pér cent., and this practice is now universally adopted throughout the country.

g. RELATION BETWEEN THE SEEDS SOWN AND THE YIELD OF THE CROP :—Formerly 5 to 6 and even as much as 10 *sho* of seeds was sown in each *tan* of rice and *mugi* fields. The experiments at the Farms established the fact that 3 to 4 *sho* is enough. The saving in the quantity of seeds sown amounts to 4 to 5 million *yen* in value throughout the country.

h. ADOPTION OF OBLONG-SHAPED RICE NURSERY BEDS :—The oblong-shaped rice nursery bed having been discovered to be best suited for improving the cultivation of rice, this style is now in a fair way to become highly popular. Indeed in some localities it has been universally adopted.

i. THE UTILIZATION OF THE DISENGAGED NURSERY-BEDS :—Formerly the disengaged nursery-beds for rice plant were left unutilized in not a few places, but this unprofitable practice has been abandoned on the advice of the Farms. In the six prefectures of the north-eastern region of Honshū, where these unutilized nursery-beds aggregated no less than 18,000 *cho* about 30 per cent., that is about 5,400 *cho* now receive rice plant like the rest of rice fields, thereby

increasing the gross output of rice in those districts by about 600,000 *koku* or 600,000 *yen* in value. The universal adoption of this valuable innovation will increase the output by about 220,000 *koku* valued at about 2,300,000 *yen*.

j. Benefit of Drainage:—The experiments conducted by the Farms has proved that the proper drainage of rice fields, not only increases the yield and improves the quality of the rice grown, but it further enables farmers to raise a crop of *mugi* or rape as the second crop of the year. As a result of this, irrigation has become popular in many places and the consequence is an increase in the quantity of the second crops. The following figures show the increase in the area of *mugi* and rape in consequence of the adoption of this two-crop system.

27th year	711,282 *cho.*
32nd „	753,588 „
Balance due to the two-crop system	42,306

The increased area of land devoted to rape due to the same system does not appear in the agricultural reports, but it is believed that the increase must be between 200,000 and 300,000 *cho.* Moreover in some places high ridges are formed in wet fields to receive the second cultivation of the year.

k. Efficient mode of destroying injurious insects:—The results of careful experiments conducted at the Farms with regard to the habits of injurious insects and the best methods of destroying them, have been to largely increase the knowledge of our farmers on these points and thus enable them to extirpate these pests or at least to minimize the damage they do. They have been especially successful in regard to the rice-plant hopper which formerly wrought such devastation in the country. Owing to the knowledge which the farmers derived from the reports issued by the Farms the injury from the source has become comparatively insignificant. In the 32nd year (1899) the rice-plant stalk borer caused serious damage in the Naka district, Toku-

shima-ken where the crops in about 537 *cho* of cultivated fields were almost destroyed, and in Muro and Hida districts, Wakayama-ken, where similar havoc was wrought in the fields extending 3,880 *cho*. The infliction of the damage next year was however efficiently prevented. The utilization of typhus bacteria germs treatment for the extirpation of the field mouse which laid waste between 5,000 and 6,000 *cho* of cultivated land in Ibaragi-ken, and the remarkable success of this process are facts that may also be cited in this connection.

l. Increased knowledge of vegetable Physiology:—Our farmers were formerly, owing to their ignorance, obliged to remain helpless spectators of the devastation inflicted by diseases or by injurious insects on their crops; but, thanks to the knowledge they have obtained from the Farms of how to combat those diseases and to extirpate these insects, they can at present minimize the injury due to these causes. The disease called rice brusone that visited some parts of our country in the 29th and 30th years, and the potato blight that occurred in the 34th year were effectually prevented from again making their appearance in the following years. A similar result has been obtained in the smut of *mugi*, yellow disease of wheat, damping-off of egg-plant, downy mildew of cucumber, pear cluster-cups and such others.

m. Selection of Manures, their Mixing, etc:—Time was when our farmers were used to apply the same kinds of manure to almost every sort of crop, and therefore failed to turn their manure to the best advantage. At present their knowledge as to the proper manure to use, and as to the mixing and the time of applying manures is fairly satisfactory, in consequence of the Farms having explained to them the importance of all those points. The three primary essentials of fertilizers are now universally known to the farmers who can reap therefore greater success from farming than they ever did before.

n. Improved Methods of Cureing Tobacco:—The recent

increase of imported tobacco, whether in the shape of leaves or manufactured cigars or cigarettes is something astonishing, the import reaching over 2,800,000 *yen*. To check this import the State Farms started in the 33rd year (1900) the work of cultivating yellow tobacco, and, though the experiments have not yet been carried on for more than two years, they have shown the possibility of cultivating that special variety in our country. The quality of the tobacco obtained from the leaves thus cultivated has proved even superior to that of the American original. There is ample hope therefore of supplying at home the tobacco consumed by our countrymen and of preventing the incoming of foreign tobacco, whether in the form of leaves or as cigarettes or cigars.

o. THE ANALYSIS OF FERTILIZERS AND FARM PRODUCTS :— Since at the request of the general public the work of making an analysis of fertilizers and farm products was started at the State Farms the farmers have been enabled to determine with greater accuracy the relative merit of fertilizers for particular farm products, and to club together among themselves in order to purchase fertilizers and to get the supply at a cheaper rate. The number of analysis undertaken at the Farms since the 27th year are shown below :—

Year.	No. of application.	No. of analytical table prepared.
27th...	54	160
28th...	444	1,313
29th...	848	1,698
30th...	1,157	2,451
31st...	1,027	2,409
32nd	1,576	3,494
33rd	1,967	4,027
34th...	3,697	7,685

p. COMPILATION AND PUBLICATION OF REPORTS :—The reports on the experiments carried out at the Head Farm and those at its branches were formerly issued distinctly. They were both distributed among Government and local offices

as well as among all the other parties concerned. These reports were again divided into those embodying the results of special researches and those containing information capable of practical application by farmers at large. This dual system was regarded as inconvenient owing to the expansion of the scope of the work carried out at the Head Farm and its Branches. The method of compilation was therefore altered from the 34th year. At the same time the Japan Agricultural Society was made to sell at cost price all those reports, as their distribution gratis, as before, had become too much of a burthen financially to the Farms. At present four different reports are issued, all based on the experiments carried out at either the Head or Branch Farms. Those reports are issued either periodically or when a sufficient amount of matter has been collected. The reports contain matter of general utility capable of practical application, whether they relate to experiments aleady concluded or in course of being carried out at either the Head Farm or its Branches, or information which may possibly be of value, or information on experiments about special farm products or on the result of experiments carried out in foreign countries. Already 157,730 copies of the reports have been published in all since the 27th year, besides about 30,000 copies on special experiments carried out at the farms.

q. Lecturing Tours:—At the request of local farmers the agriculturists and other experts on duty at the farms were made to proceed to different places throughout the country, either to deliver lectures or to inspect the condition of the crops and other farm work. During the eight years ended the 34th year, 1,745 such lectures were delivered and 2,277 visits were undertaken. It is hardly necessary to add that the lectures and visits have contributed much to the improvement of farming.

r. Queries:—During the eight years mentioned above the Farms replied to 20,928 queries coming from all parts of the country.

s. Inspection of State Experimental Farms :—The Farms being open all the year round, visitors are welcome to them. During the eight years again, 84,129 visitors came, and they derived of course much practical benefit from what they had seen and heard at the Farms.

Such is, briefly, a description of the principal work by the Head and Branch Farms during the nine years that have elapsed since their establishment, and the benefits indirectly conferred by them on the cause of practical and scientific agriculture are out of course immense.

The location and jurisdiction of the Head and Branch Farms :—They are situated as follows : —

Name.	Location.	Jurisdiction.
Head Farm	Takinogawa, Kitatoshima, Tokyo-fu.	Tokyo, Kanagawa, Saitama, Gumma, Chiba, Tochigi, Ibaragi, Yamanashi, Nagano.
Kinai Branch	Yanagiwara, Minamikawachi, Osaka-fu.	Kyoto (except Tango), Ōsaka, Hyogo, (except Tajima), Nara, Wakayama.
To-o „	Nagasaki, Natori, Miyagi-ken.	Miyagi, Fukushima, Iwate.
Hokuriku „	Matsuto, Ishikawa, Ishikawa-ken.	Niigata, Fukui, Toyama, Ishikawa.
Sanyo „	Gion, Yasusa, Hiroshima.	Okayama, Hiroshima, Yamaguchi.
Shikoku „	Kamona, Myoto, Tokushima.	Tokushima, Kagawa, Ehime, Kochi.
Kyūshū „	Demizu, Kuma, Kumamoto.	Nagasaki, Fukuoka, Oita, Saga, Kumamoto, Miyazaki, Kagoshima, Okinawa.
Tōkai	Yasuki, Hekkai, Aichi.	Miye, Aichi, Shizuoka, Shiga, Gifu.
Riku-u „	Hanadate, Senboku, Akita.	Aomori, Yamagata, Akita.
San-in „	Enya, Higawa, Shimane.	Tottori, Shimane, Tango, Tajima

II. LOCAL EXPERIMENTAL FARMS.

Apart from the State Farms above mentioned there are local experimental farms maintained at the local expense and chiefly devoted to the work of practical application and of model-farming.

There are 37 such farms throughout the country, with an estimated outlay of 357,742 *yen* altogether, or an average of about

9,414 *yen*. At each of the farms a number of experts are on duty, being under the control of the respective local Governors and subject to the supervision of the Minister of Agriculture and Commerce. These farms are not maintained entirely at the local expense, for the Government, with the object of securing the greater efficiency of the service, established in the 30th year the provision of granting a certain rate of State aid within the limit of not more than 150,000 *yen* altogether every year. The latest returns of the local experimental farms are shown below :—

Locality.	Date of establishment.	Local expenditure for 35th year.	Grant of State aid.
		yen.	*yen.*
Hokkaidō	Oct. 34th year ...	4,928.105	—
Tokyo	April 33rd „ ...	10,558.880	2,300
Kyoto	Jan. 33rd „ ...	6,277.506	1,400
Ōsaka	——	—	—
Kanagawa	July 29th „ . .	8,536.692	1,900
Hyogo	Nov. 27th „ ...	11,832.763	2,400
Nagasaki	Dec. 30th „ ...	12,655.231	2,500
Niigata...	Aug. 28th „ ...	19,507.041	3,000
Saitama	April 33rd „ ...	11,115.732	2,300
Gumma	Sept. 28th „ ...	9,733.495	2,100
Chiba	——	—	—
Ibaragi...	Feb. 33rd „ ...	25,132.780	3,000
Tochigi	Sept. 28th „ ...	9,171.232	2,900
Nara	April 28th „ ...	7,780.588	1,700
Miye	Oct. 27th „ ...	8,378.747	1,400
Aichi	Nov. 27th „ ...	19,881.090	3,000
Shizuoka	May 33rd „ ...	11,433.165	2,300
Yamanashi	Feb. 33rd „ ...	5 475.690	1,200
Shiga	May 28th „ ...	7,981.416	1,700
Gifu	Mar. 34th „ ...	7,595.320	1,700
Nagano...	Jan. 30th „ ...	8,699.985	1,900
Miyagi	——	—	—
Fukushima	Jan. 30th „ ...	7,475.275	1,600
Iwate	Feb. 34th „ ...	5,559.907	1,200
Aomori	Mar. 33nd „ ...	7,032.720	1,500
Yamagata	Dec. 29th „ ...	12,949.037	2,500
Akita	Nov. 27th „ ...	7,259.157	1,600
Fukui	——	—	—
Ishikawa	Feb. 35th „ ...	5,827.820	—
Toyama...	Dec. 27th „ ...	4,790.559	1,000

Locality.	Date of establishment.	Local expenditure for 35th year.	Grant of State aid.
		yen.	*yen.*
Tottori	Feb. 35th „ ...	5.138.057	2,400
Shimane	Aug. 29th „ ...	12,488.047	—
Okayama	Feb. 33rd „ ...	11,398.639	2,300
Hiroshima	Feb. 33rd „ ...	9 011.295	2,100
Yamaguchi	April 29th „ ...	9 880.573	2,200
Wakayama	——	—	—
Tokushima	——	—	—
Kagawa...	Jan. 31th „ ...	6,825.010	1,500
Ehime	Feb. 33rd „ ...	10,720.965	2,300
Kōchi	Sept. 32nd „ ...	5,265.901	1,100
Fukuoka	Dec. 27th „ ...	14,350 000	2.600
Ōita	——	—	—
Saga	Mar. 33rd „ ...	5,807.130	1,300
Kumamoto	——	—	—
Miyazaki	May 32nd „ ...	4 507.590	1,000
Kagoshima	Feb. 33rd „ ...	5,773.559	1,000
Okinawa	——	—	—
Total		357,742.699	67,200

Note:—There is in Fukui-ken an experimental farm run by the local agricultural society, and it resembles much in its nature the farms contained in the list.

Besides the above there are experimental farms maintained by sub-prefectural districts, where simple experiments and the work of model-farmings are conducted. There are also lesser experimental farms established by towns or villages or by a body of farmers' sons. The experimental farms established by the sub-prefectural districts number 110 in all, and are distributed as follows:—

Kanagawa	11	Akita	4
Hyogo	16	Tottori	4
Nagasaki	6	Kagawa	4
Ibaragi	3	Oita	12
Tochigi	1	Kumamoto	8
Nara	4	Yamagata...	5
Miye	2	Toyama	6
Nagano	1	Yamaguchi	11
Miyagi	3	Fukuoka	2
Fukushima	1	Saga	1
Iwate...	5		
Total	110		

The officials at the local experimental farms enjoy an official status corresponding either to that of higher officials or to that of clerks in the regular civil service.

III. LOCAL AGRICULTURAL TRAINING SCHOOLS.

The local agricultural training schools are maintained by the local treasuries and subject to the supervision of the Minister of Agriculture and Commerce. The object of these institutions is to impart to farmers' sons and to farming people generally some elementary knowledge of the general principles of agriculture, surverying, meteorology, physics, chemistry, natural history, veterinary science, horse-shoeing, etc. The institutions are also entitled to a share of the 150,000 *yen* mentioned above.

At present these schools exist only in six places, Miye, Aichi, Tokushima, Miyazaki, Aomori and Hokkaidō, and these are turning out every year from 30 to several hundred graduates, who are to play an important part in the interests of local agriculture.

The number of the existing schools is:—

	Date of establishment.	Estimates for 35th year. *yen.*	State aid. *yen.*
Hokkaidō...	Oct. 34th year ...	5.507.378	—
Miye...	Feb. 29th „ ...	3,819.040	800
Aichi	Mar. 34th „ ...	5 871.000	1,300
Aomori	Feb. 35th „ ...	3,176.820	—
Tokushima	June 30th „ ...	2,835.890	600
Miyazaki	Feb. 31st „ ...	2 561.930	500

IV. LOCAL LECTURERS ON AGRICULTURE.

Lecturers on agriculture are appointed in local or sub-local districts to deliver lectures relating to farming and to answer all inquiries addressed to them on the same subject by farmers in the district. They must besides attend to the experimental farming carried on at the public expenses, to the local agricultural shows, and to the other such matters. These lecturers have done much to increase the knowledge, practical and scientific, of our farmers. Their number is as follows, according to the latest returns:—

	Prefecture.	Sub-Prefecture.		Prefecture.	Sub-Prefecture.
Ōsaka	1	—	Akita	2	8
Hyogo	2	—	Fukui	2	—
Nagasaki ...	—	7	Ishikawa ...	4	18
Saitama	—	4	Toyama... ...	—	4
Gumma	—	1	Shimane ...	2	13
Ibaragi	2	11	Okayama ...	2	1
Tochigi	—	8	Yamaguchi ...	4	24
Nara	—	2	Wakayama ...	3	—
Miye	—	10	Tokushima ...	—	17
Aichi	1	2	Kagawa ...	1	—
Shizuoka ...	?	14	Fukuoka ...	2	12
Shiga	—	5	Ōita	1	12
Gifu	—	1	Saga	1	—
Nagano	—	11	Kumamoto ...	3	18
Miyagi	2	15	Miyazaki ...	5	—
Fukushima ...	—	18	Kagoshima ...	4	16
Iwate	2	6	Hokkaidō ...	3	—
Yamagata ...	1	2			
				—	—
Total				50	260

V. STATE SERICULTURAL TRAINING SCHOOLS.

In view of the important part played by sericulture in the economy of the country and therefore of the necessity of adopting measures for promoting its interest, the Government established as early as the year (1874) an experimental sericulture school where till the 12th year, when it was closed, between 15 and 160 students were initiated into the theory and practice of sericulture. Meanwhile Febrine, that dreadful disease of the silkworm, that had inflicted such terrible injury on the sericultural industry of France and Italy, began to make its appearance. Forced by the necessity of doing something to check such wholesale destruction, the Government established in Tokyo in April of the 17th year the Silkworm Disease Laboratory. The result of the experiments there conducted was the adoption of Pasteur's method of "grainage cellulaire."

Up to the 19th year experiments not only on Febrine but also on Flacherie and Muscardine were continued, and the reports embodying the results were distributed among all the parties concerned. In the same year, and as a result of those experiments the Government issued Rules for the Inspection of Silkworm Eggs. This legislation necessitated the training of men able to conduct the work of inspection. In the 20th year a number of students were collected from all parts of the country and were admitted to the sericultural experimental laboratory established at Nishigahara, Kita-toshima, Tokyo, to receive instruction on the diseases of silkworm and on other important matters relating to sericulture. The scope of the teaching was expanded three years later and the standard of the instruction given was advanced. Till the 28th year (1895) the Laboratory conducted experiments on sericulture, distributed the reports compiled by it and also distributed eggs of such varieties of worms as were judged best. At the same time the Laboratory attended to the work of turning out experts on sericulture. Coming to the 29th year, the scope of the business was expanded with the consent of the Imperial Diet which advised the Government to establish sericultural schools of larger scope and better organization both at Tokyo and Kyoto. Thus in March of the same year the former sericultural Laboratory was superseded by a sericultural school in Tokyo, while, coming to the 32nd year, another school was started at Kinukasa-mura, Kuzuno-gori, Kyoto-fu. The two schools have to take charge of the following matters:—

1. Instruction in sericulture.
2. Experiments and investigations in sericulture.
3. Lectures on sericulture.
4. Distribution of silkworm eggs.
5. The answering of queries.

The courses are of two kinds, main course and special course. In the former which extends over two years, the students are taught the scientific principles and practices of sericulture, while in the other course which lasts for only five months the students are instructed chiefly in the practical side and in the elementary principles of this important art. The number of graduates thus far number 1,721 in all, as follows:—

Year.		No. of graduates.
19th		32
20th		275
21st		261
22nd		196
23rd		34
24th		46
25th		50
26th		40
27th		58
28th		61
29th		61
30th	Special course	54
31st	Main course	42
	Special „	53
32nd	Main course	42
	Special „	51
33rd	Main course	42
	Special „	79
34th	Main course	35
	Special „	88
35th	Main course	36
	Special „	85
Total		1,721

Further, there were 49 men who were granted licenses on examination in the 21st year, to supplement the staff of inspectors for the better enforcement of the Rules for the Inspection of Silkworm Eggs, while from the 34th year a special course was created at the two Sericultural Schools above mentioned for the benefits of experienced sericulturists who wished to acquire some knowledge of the diseases of silkworm. The number of students at this course were :—

	Tokyo.	Kyoto.
34th year	40	40
35th „	43	40
Total	83	80

Thus far the provisions at the sericultural schools have been confined almost exclusively to matters relating to the raising of the of the worms, leaving the other equally important business of the manufacture of silk to be carried on according to the old imperfect method. In consequence of this neglect our silk has not unfrequently been blamed for deterioration of quality. The authorities were not unaware of this fact, but circumstance prevented them for some time from taking up this matters in any systematic way. At last the time for making this important departure arrived, and a course of silk manufacture was established from the present year at the Tokyo Sericultural School. Besides giving the necessary training to those men who are destined to engage in this manufacture and to women who have to act as "foremen" in a reeling establishment, the course will, according to the present intention, include all the important experiments that have so far been carried out in connection with the manufacture of silk.

VI. LOCAL SERICULTURAL TRAINING SCHOOLS.

With the sudden rise in the prosperity of the sericultural industry soon after the Restoration, people from those places where the industry had just been started flocked to Nagano, Fukushima, Gumma and other districts where sericulture had been carried on from former times, in order to obtain some knowledge on the subject. The result was that several experts in those sericultural districts combined together and established training schools with the object of more conveniently imparting the necessary knowledge to the aspirants. The most notable of such private institutions were the Kakeda Training School in Fukushima-ken, the Takayama Training School in Gumma-ken, and the Kyōshin-sha Training School in Saitama. But the training given at those places confined itself almost exclusively to the practical side of the industry. This lack of any scientific side in this system of training prevented the graduates from ever becoming quite qualified to undertake the task, especially in view of the progress in all directions, and in the direction of education.

A regular system of sericultural education soon began to be provided in many parts, either as a special course in agricultural schools or as the only course in special sericultural schools or training schools, maintained either out of the public funds or by private bodies. The sericultural institutions that now exist are shown in the following table.

	Public.	Private.		Public.	Private.
Hokkaidō ...	1	—	Aomori	1	9
Tokyo	—	3	Yamagata ...	1	2
Kyoto	—	1	Akita	2	—
Ōsaka	—	—	Fukui	—	—
Kanagawa ...	1	1	Ishikawa ...	3	—
Hyogo	—	—	Toyama	—	—
Nagasaki ...	1	1	Tottori	—	1
Niigata	—	2	Shimane ...	—	—
Saitama	—	12	Okayama ...	—	—
Gumma	—	9	Hiroshima ...	—	—
Chiba	—	5	Yamaguchi ...	2	—
Ibaragi	—	1	Wakayama ...	—	—
Tochigi	—	1	Tokushima ...	4	—
Nara	—	2	Kagawa	3	—
Miye	1	—	Ehime	—	—
Aichi	1	4	Kōchi	—	—
Shizuoka ...	—	—	Fukuoka ...	4	—
Yamanashi ...	—	—	Ōita	2	9
Shiga	—	—	Saga	—	—
Gifu	1	5	Kumamoto ...	4	5
Nagano	1	1	Miyazaki ...	1	1
Miyagi	—	—	Kagoshima ...	—	—
Fukushima ...	—	1	Okinawa ...	—	—
Iwate	5	7			
				—	—
Total				39	86

VII. STATE SILK-CONDITIONING HOUSE.

It was suggested long ago in some quarters that as a means of promoting the export of our silk a regular silk-conditioning house qualified to undertake the weighing of gross and net quantity of silk and to determine its quality should be established. More than once the matter received the serious attention of both the public and the Government, but it was not till the 27th year that the arrangements for the establishment of such an institution were finally made and that two silk-conditioning houses were opened, one at Yokohama and the other at Kobe, the former in August of the 29th year and the latter in June of the same year. Unfortunately the Kobe establishment had to close its doors in April of the 34th year, owing to the fact that it had not sufficient business to justify its existence.

On the other hand the business at the Yokohama establishment grew more and more active with the lapse of time, and today it is universally regarded as an important organ of our silk trade. The work undertaken at this establishment covers the following subjects:—

1. To determine the gross weight of silk by examining it when packed.
2. To determine the net weight of silk by taking into account the quantity of moisture contained in it.
3. To examine the number of breakages by means of re-reeling the silk and to determine the rate of such breakages per reel.
4. To examine the size of the filaments and to determine their relative uniformity.
5. T examine the relative number of knots in the filaments.
6. To determine the strength and tenacity of the filaments.
7. To examine the relative quantities of gummy substances present in the filaments and to determine the relative decrease in the quantity incidental to softening.

Of the foregoing seven items the most important are the first four, although the House is prepared to go through all the seven

stages of examination at the request of applicants. Most of the applications made at present are in connection with the determination of net weight, the next greater number of applications relate to breakages and to the size, after which come the applications about strength, tenacity, and the presence of knots. Applications about gross weight and softening allowance are extremely rare. The number of examinations conducted at the House since its inception are as follows:—

	29th year.	30th year.	31st year.	32nd year.	33rd year.	34th year.
Gross weight	—	18	1	68	42	2
Net weight...	221	178	232	737	4,007	18,236
Determination of grade ...	968	2,431	4,636	8,469	7,079	15,003
Softening diminution... ...	47	16	15	7	21	2
Total	1,236	2,643	4,884	9,281	11,189	33,243

Note:—Examinations coming under Nos. 3. 4. 5. 6, in the preceding seven items were all included in the foregoing table in the column of "determination of grade."

The reason why the number of applications relating to the determination of net weight showed a sudden increase from the 33rd year, the year of the enforcement of the revised treaty, was due to the fact that our silk merchants, desirous of removing various abuses that had previously existed in the business carried on between them and foreign exporters, had concluded with the latter a special arrangement about the method of doing business by which the latter were entitled to demand a certain fixed rate of damages, in case the rate of humidity of the silk exceeded the prescribed limit.

At first the House was not quite prepared to meet with the sudden increase in the number of applications that resulted; but owing to the necessary expansion made in the 34th year in the scope of its arrangement to-day it is ready to undertake with promptitude all such applications, so that both in the scope of the work it does and in its efficiency, the House can at present bear comparison with its foreign compeers.

VIII. EXPERIMENTAL TEA FARM AND CURING WORKSHOP.

Placed under the control of the Bureau of Agriculture, the Experimental Tea Farm and Curing Workship at Nishigahara in

Kitatoshima district, undertakes all the work relating to the cultivation of the tea plant, the modes of curing the leaves and the improvement thereof and the answering of all inquiries coming from general tea manufacturers and dealers. Finally, the establishment carries out inquiries into the state of the tea industry and market at home and abroad. It was established in the 29th year.

IX. CATTLE FOWLS EPIDEMIC LABORATORY.

That a cattle epidemic bears an important relation to agricultural economy and public hygiene, as well as to public industry at large admits of no doubt. This country has often been subject to one or other kind of epidemic, as is shown by the almost constant outbreaks of anthrax that take place in the Kyūshū and Kinai districts where almost every year hundreds of cattle and horses fall victims to that disease. Serious loss has frequently been sustained by our stock farmers owing to the introduction of cattle plague from the continent, while glanders, farcy, ranchbrand, moon-blindness, chicken cholera are diseases from which our stock farmers and poultry are suffering. It was to provide against such sources of loss that in the 24th year (1891) the Bureau of Agriculture of the Department of Agriculture and Commerce established the Cattle Fowls Epidemic Laboratory with the object of ascertaining the best preventive measures to be taken, the work as conducted thus far by the Laboratory has been very beneficial. We may briefly describe it as follows, reserving further details for a future occasion. Its object, then, is to carry out :—

1. Experiments with tuberculine in cases of tuberculosis in cattle.
2. Experiments on Mr. Charvaux's anti-anthrax innoculation.
3. Experiments on the connection of fowl's blood with foot and mouth disease.
4. Experiments with regard to injections made in the case of milch cows when they are suffering from tuberclosis and with regard to the feeding of such cows.
5. Experiments to determine the part played by ordinary flies and horse-flies as media in the spread of cattle epidemic.

6. Experiments with regard to the cultivation of the germs of true farcy and glanders and experiments on innoculation with these germs.
7. Experiments on Mallein injections.
8. Experiments on the effect of silver nitrate and solution of perchloride of iron in cases of fowl diphteria.
9. Experiments on blood-serum injection as preventive against chicken cholera.
10. Investigations with regard to preventive remedies and blood-serum treatment in the case of cattle plague.
11. Experiments in which immunity from anthrax has been effected by means of a certain disease germ.
12. Experiments on blood-serum treatment as a preventive of anthrax.
13. Practical application of the result of D. Mereskkowsky's investigations on the subject of getting rid of rodents by means of typhus germs.
14. Experiments on the duration of the efficacy of tuberculin.
15. Experiments on the period of preparing blood-serum for use in cases of foot and mouth disease.
16. Experiments on the duration of efficacy of blood-serum treatment as preventive against anthrax.
17. Investigation into the effective composition of tuberculin.
18. Experiments on the anti-ranchbrand innoculation.
19. Experiments on blood-serum treatment as preventive against ranchbrand.

X. STATE CATTLE BREEDING PASTURES.

History :—Japanese cattle being of inferior quality, impure in breed, and therefore coming far below those of the West whether they are kept for meat or for milk, the necessity for improving

the breed has long been felt, especially in view of the marked advance that has taken place recently in the consumption of milk and meat in our country. The birth-rate too of cattle does not even keep pace with the rate of slaughter. However the question of improving the breed having been regarded as one of greater urgency than that of increasing the birth-rate, and as the importation of costly foreign cattle can hardly be undertaken by private individuals or even by communal bodies, the Government was obliged to start on its own account number of years ago the Shimosa Breeding Pasture and undertook the business of improving the breed of cattle and horses by hiring out for breeding purpose cattle and horses imported from abroad. Unfortunately to the keen regret of all concerned this pasture was abolished not long after. The necessity for re-opening a similar pasture was soon felt by the public, and petitions were sent by our stock farmers to the authorities asking for the restoration of the former arrangement. At last the matter was taken up by the Imperial Diet, which passed a representation urging the resumption of measures for improving the breed of cattle and horses. The suggestion was adopted by the Government, and in the 33rd year (1900) the official organization relating to state cattle breeding pasture was enacted and the Nanatsukahara Cattle Breeding Pasture, the 1st station of this kind, was established in May of the same year at Yamauchi Higashi-mura, Hiba-gōri, Hiroshima-ken. At the same time a special commission was appointed entrusted with the work of drawing up a programme of improvements that might be made and of advising the Department of Agriculture and Commerce on all matters relating to such improvements. The Commission was composed of officials of the Department, Professors of the College of Agriculture of the Imperial Tokyo University and other experts.

Purchase of Breeding Cattle:—In the 33rd (1900–1901) fiscal year an expert was dispatched abroad to making purchases of cattle and swine for breeding purposes. At the same time Japanese cows were bought in the same way for breeding purposes in the provinces of Hiroshima and Tottori. This purchase both of foreign and domestic cattle was repeated in the following year so that altogether the purchases made during the two years numbered as follows:—

Breed.	Sex.	33rd fiscal year.	34th fiscal year.	Total.
Ayrshire	Cows...	9	11	20
,,	Bulls...	3	2	5
Simmenthal	Cows...	7	8	15
,,	Bulls...	3	2	5
Nave Cattle	Cows...	16	5	21
,, ,,	Bulls...	—	—	—
		—	—	—
Total	Cows...	32	24	56
	Bulls...	6	4	10

Work :—The work undertaken by the State Pasture includes the investigation of all questions.

1. Relating to the improvement of the breed and to the breeding and rearing of cattle.
2. Matters relating to the distribution and diffusion of breeding cattle.
3. Matters relating to the control of breeding cattle distributed.
4. Matters relating to the calves from cows paired with breeding bulls.

Number of Breeding Cattle :—The number of cattle used for breeding was as follows at the end of March, the 35th year (1902) :—

Breed.	Sex.	Imported	Native Breed.	Born on the pastures.	Total.
Ayrshire	Cows...	20	—	10	30
,,	Bulls...	5	—	7	12
Simmenthal	Cows...	14	—	6	20
,,	Bulls...	5	—	6	11
Native	Cows...	—	21	1	22
,,	Bulls...	—	—	—	4
Half-breed	Cows...	—	—	4	4
,,	Bulls...	—	—	4	4
		—	—	—	—
Total	Cows...	34	21	21	76
	Bulls...	10	—	17	27

Pairing and Breeding :—The pairing is mostly done in the spring, and the birth rate is 7½ to 10 in the case of Ayrshires 6 in the case of Simmenthals, and 5.55 in that of native cattle.

In October of the 34th year, rules were drawn up to regulate the leasing out for breeding purpose of the bulls kept in the Pasture, the bulls to be paired of course with the proper kind of cows.

Milk and Butter:—The milk supplied by the cows kept in the Pasture is used for feeding the calves born on the Pasture, the remainder being used for making butter, which, however, does not exceed 100 pounds a month at present. Whatever milk remains is sold direct to dairy-men.

Swine:—The improvement in the breed of swine is also attended to at the Pasture, swines for breeding purposes being imported. At the end of May, 35th year, the number of swine at the Pasture was as follows:—

Breed.	Sex.	Imported.	Native.	Born on the pasture.	Total.
Large Yorkshire	Sows	4	—	3	7
„ „	Boars	2	—	4	6
Middle „	Sows	2	—	2	4
„ „	Boars	1	—	1	2
Small „	Sows	2	—	3	5
„ „	Bows	1	—	2	3
Berkshire	Sows	6	—	14	20
„	Boars	3	—	12	15
		—	—	—	—
Total.	Sows	14	—	22	36
	Boars	7	—	19	26

Sale of Breeding Swine:—For the purpose of encouraging the improvement of the breed of swine the Pasture sold during the 34th fiscal year (1901–'02) 36 swine, 18 sows and 18 boars.

XI. STATE HORSE PASTURES AND STUDS.

History:—The breeding of horses being rightly regarded as of vital importance to the prosperity and strength of the country, the Government commenced early in the Meiji era to improve the breed of horses by importing stallions for that purpose. The result was not wholly satisfactory owing to mistakes in the selection of breeds, and also in the pairing. But the interest of the country did not allow this business to be left neglected and the Government, warned by its past failures, decided to carry out thorough preliminary investigations as to the best way of dealing with this important matter, and to appoint a Special Commission for that purpose. At last in July of the 28th year a Commission was appointed, and this Commission, as a result of investigations extending till the 30th year, submitted

a report representing among other things the necessity of establishing horse pastures and studs. This representation was approved of by the Government. It also obtained the consent of the 9th session of the Imperial Diet. Based on the inquiries carried out by experts dispatched to all the important horse breeding districts in the country, the programme proposed the establishment of two pastures and 16 studs, and their completion in about seven years.

In June of the 29th year the official arrangements for the establishment of state horse pastures and studs were completed, and two pastures and three studs were established. At the same time inspectors and other officials to take charge of the breeding business were appointed, and a few years after the Horse Section was created in the Bureau of Agriculture.

The improvement programme aims at completing the arrangements at the two pastures and of increasing the number of studs to the prescribed limits, so that 10 per cent of the breeding stallions required throughout the country may be supplied at those stations. The authorities are also contemplating the enforcement of castration in order to complete the improvement of the breeding system.

Work:—The work to be undertaken at the Pastures and Studs was regulated as follows:—

I. The Pastures were to deal with all

1. Matters relating to the improvement of the breed of horses and all experiments in connection with their breeding and rearing.
2. Matters relating to the supplementing and distribution of breeding horses.

II. The Studs were to deal with all

1. Matters relating to the breeding of breeding horses.
2. Matters relating to the pairing of breeding horses.
3. Matters relating to the control of private breeding horses.
4. Matters relating to the colts born of mares paired with breeding stallions: —

Names and Location:—The names and location of the Pastures and Studs established thus far are as follows:—

Name.	Location.	Date of establishment.
O-U Horse Pasture	Hichinohe, Kamikita, Aomori.	June 29th year.
Kyūshū „ „	Makizono, Kora, Kagoshima.	May 29th year.
Iwate Stud	Takizawa, Iwate, Iwate.	June 29th year.
Kumamoto „	Kawa, Kuma, Kumamoto.	May 29th year.
Miyagi „	Nishiosaki, Tamatsukuri, Miyagi.	May 29th year.
Akita „	Jinguji, Senhoku, Akita.	July 30th year.
Fukushima „	Saigo, Nishishirakawa, Fukushima.	July 32nd year.
Miyazaki „	Kobayashi, Nishimoroagata, Miyazaki.	Sept. 32nd year.
Shimane „	Yatsukawa, Nita, Shimane.	May 33rd year.
Aichi „	Danryo, Kitashidara, Aichi.	July 34th year.

PURCHSE OF BREEDING HORSES:—Not less than two experts are dispatched abroad every year to effect the purchase of breeding horses. These numbered as follows up to the 34th fiscal year.

NUMBER OF BREEDING HORSES PURCHASED ABROAD.

Breed.	Sex.	30th year.	31st year.	32nd year.	34th year.	Total.	
Pure Arabs	Mares	1	2	2	—	—	5
	Stallions	1	1	5	—	—	7
Arabs	Mares	4	1	—	1	—	6
	Stallions	2	1	—	—	—	3
Pure Anglo-Arabs	Mares	2	3	4	—	—	9
	Stallions	4	4	3	—	—	11
Trotters	Mares	—	—	—	—	5	5
	Stallions	2	—	—	—	8	10
Thoroughbreds	Mares	—	—	—	1	2	3
	Stallions	1	—	—	--	2	3
Anglo-Arabs	Mares	--	—	1	1	—	2
	Stallions	—	—	—	4	—	4
Hackneys	Mares	—	—	—	4	—	4
	Stallions	—	—	2	3	—	5
Total		17	12	17	14	17	77

Besides the above, a large number of breeding horses were purchased at home, as follows:—

	29th.	30th.	31st.	32nd.	33rd.	34th	Total.
Mares	114	12	20	23	18	4	191
Stallions	150	5	34	33	32	29	283
Total	264	17	54	56	50	33	474

PAIRING:—The Studs undertake the pairing of the stallions kept therein with mares belonging to private individuals. This was done previously free of charge, but a small fee has been charged since the 35th fiscal year (1902–03) for pairing with superior stallions,

mostly of imported breeds, owing to the fact that too many applications for pairing had been sent in. The necessary permission being only given of course to mares properly qualified, the colts born of the mares by the stallions kept at the Studs, are much better than those generally produced.

The object of the pastures is to keep mares and stallions and to supply superior stallions for the Studs, but as the these Studs have not yet come up to the prescribed number, the stallions kept at the Pastures are allowed to pair to some extent with mares of private people. This pairing was therefore started in the 35th fiscal year, a fee being charged, as in the case of the Studs.

The number of pairings carried out at the Pastures and Studs during the past few years is as follows:—

Year.	Stallions used for pairing.	Number of mares paired.
30th...	31	451
31st...	55	925
32nd	109	2,103
33rd...	121	2,962
34th...	138	3,365

The pairing with mares kept by private people was started from the 32nd year of the pastures.

Colts:—The colts born of mares paired with the stallions kept at the Pastures and Studs are as follows:—

Year.	Foreign breed.		Half-breed.		Native breed.		Total.	
	Stallions.	Mares.	Stallions.	Mares.	Stallions.	Mares.	Stallions.	Mares.
30th	—	—	6*	3*	6*	4*	12*	7*
31st	3*	2*	10*	13*	—	2*	13*	17*
	3	2	41	45	27	29	71	76
32nd	4*	1*	23*	25*	7*	6*	34*	32*
	—	—	72	80	71	58	143	138
33rd	1*	6*	29*	21*	5*	6*	32*	31*
	—	1	138	140	209	200	347	341
34th	8*	8*	47*	44*	—	—	55*	52*
	2	1	238	245	320	336	560	582

Notes:—The figures marked with an asterisk denote the colts born of mares kept at the Pastures, the rest being born mares kept by private people.

Number of Horses:—The number of horses at the Pastures and Studs at the end of the 34th fiscal year were:—

	Foreign breed.		Half breed and Domestic breed.		Farm horses.		Total.	
	Stallions.	Mares.	Stallions.	Mares.	Stallions.	Mares.	Stallions.	Mares.
O-u Pasture	24	45	37	134	17	—	78	179
Kyūshū Pasture ...	11	14	33	98	16	—	60	112
Iwate Stud	4	—	62	—	4	—	70	—
Kumamoto Stud ...	2	—	27	—	7	—	36	—
Miyagi Stud	4	—	29	—	4	—	37	—
Akita Stud	3	—	23	—	2	—	28	—
Fukushima Stud ...	2	—	25	—	2	—	29	—
Miyazaki Stud ...	3	—	24	—	—	—	27	—
Shimane Stud... ...	—	—	16	—	—	—	16	—
Aichi Stud	—	—	16	—	—	—	16	—
Total	53	59	292	232	52	—	397	291

Note : — Besides the above O-u and Kyūshū Pastures had each 11 farm cattle and the Kumamoto Stud 2 farm cattle.

Other Agricultural Organizations :—The organizations described thus far belong either to the Government or to civic corporations. There are other organizations established under law by bodies of farmers, such as Agricultural societies, industrial guilds, guilds relating to farming, tea guilds, cattle and horse guilds, and others. These will be described under the chapter of agricultural legislation to be given later on.

CHAPTER V.—Sericulture and Tea-manufacturing.

I. SERICULTURE.

History:—Sericulture or the art of rearing silkworms dates apparently from the "Age of the Gods," in Japan. Coming down to the "Age of Man," however, we find that the art (or rather the industry as it had already become one by that time) had made marked progress, even in early days, owing to the Imperial encouragement and owing also to the effort of Chinese instructors who had become naturalized in the country. It was in the 4th year of the reign of the Emperor Chuai (or the year 195 of the Christian era) that Prince Koman, a grandson of Kosei, the 11th lineal successor of the Emperor Shih Hwang, of the Tsing dynasty (China) came over and got naturalized in Japan, bringing with him and introducing into this country the Chinese species of silk-worm, which then come to be cultivated extensively in this country. In the 14th year of the reign of the Emperor Ohjin (283 A.D.) Yu Tsu, a son of Prince Koman, came over and became naturalized in Japan, bringing with him the inhabitants of 127 districts, "*hiens*" (China). As these emigrants knew how to weave silk, they were distributed —according to the old chronicles—in different localities in the country, where they were employed in teaching the inhabitants the art of silk weaving. About 50 years later, that is 342 A.D., the Emperor Nintoku is said to have caused his Empress to pay visits to the houses of the sericulturists, so as to encourage them in their industry, while subsequently in 462 the Emperor Yūryaku even caused his Empress to pick mulberry leaves in person and rear silk worms. Indeed, under the reign of the latter sovereign the silk industry attained a high degree of prosperity owing to the special Imperial encouragement which took the forms of rescripts ordering officials to buy and collect silk worm, or causing provinces and prefectures to choose localities and plant therein mulberry trees, or decreeing that

some of the taxes to be paid in kind should consist of silk fabrics. From this time onward, history continues to indicate the efforts at encouraging the industry which were made by succeeding Emperors, efforts which resulted in the further development of the industry.

Coming down to the Japanese "Middle Ages," we find that silk raising and weaving had come to occupy the principal place among the productive industries of the country. Silk had come to be accepted for tributes and contributions to the Imperial Government, while silk fabrics had also come to be used in general for wearing purposes. In consequence of this it came to pass that, there was not a place throughout the country where silk was not raised and not a province, where silk fabric was not produced. A sericultural record compiled in the 15th year of Yen-ryaku in the reign of the Emperor Kanmu (796 A.D.) mentions the names of 36 provinces scattered over the districts of Kinai, Tōkai, Tōsan, Hokuriku, San-in, Sanyō, and Nankai. Later, in the 5th year of Yenchō, in the reign of the Emperor Daigo (927 A.D.) the silk producing localities had come, according "Engi-shiki," to be classified in the order of the various grades of silk they produced, there being then 12 best, 25 medium, and 11 inferior "silk provinces." One can form these facts an idea as to the extent to which sericulture had then come to be pursued in this country. During the "age of wars" (or the Japanese Dark Ages) that lasted about 700 years, commencing with the 2nd year of Tenkei in the reign of the Emperor Shujaku (939 A.D.) the raising of the worm and weaving of silk could only be carried on in secluded and out-of-the-way places which were comparatively free from the ravages of fire and sword.

With the return of peace under the Tokugawa Shogunate (1615 and downward), the industry began gradually to recover from the effects of the "War Age," owing to the endeavours of such Daimios, as were anxious to bring the people under them back to settled occupations in general, and who were not slow to see the importance of rehabilitating sericulture. For all that, however, the enforcement of rigid

suruptuary legislation prohibiting the wearing of all silk fabrics by the common people, had the effect of throwing the industry into a sudden decline as often as the reactionary measures were had recourse to. With the opening of the trade ports, as the result of concluding treaties of commerce with foreign countries, in the 6th year of Ansei in the reign of the Emperor Komei (1859), the market for silk and silk stuffs widened all at once, laying the foundations, so to speak, for the permanent prosperity of this industry. Since the opening of the new era of Meiji, the Imperial Government has, in its endeavours to carry out the Emperor's wishes, been indefatigable in its efforts to encourage the industry and secure its further progress, with the result that it has now attained a considerable degree of development, while the fame of Japanese silk has become world-wide and the article commands high prices accordingly.

Silk as an article of foreign commerce has, however, its own history of ups and downs. The prevalence of the silk-worm epidemic in Europe (soon after the opening of the country) brought about large demand for silk-worm eggs in this country. With the increase in the quantity of the eggs exported, came, however, the practice of sending out egg-cards of inferior quality or carelessly manufactured. In consequence of this, the Government (between the years 1865 and 1878) frequently issued laws and ordinances, the object of which was to bring under proper control those engaged in the industry. Unfortunately this legislation proved ineffectual, while about the same time and as a result of experiments made as regards the epidemic in question, a discovery was made in Europe, whereby inoculated eggs came to be produced.

These circumstances had the combined effect of gradually diminishing the exportation of Japanese silk eggs, until they entirely ceased to be sent abroad. About this time demoralization set in, also, in the manufacture of our raw silk and their buyers abroad were loud in their complaints against them. The authorities again had recourse to legislative means to put right this evil tendency and went so far as to establish at

Tomioka, Joshu, a model filature, for which they engaged a French expert as superintendent. This was in the 3rd year of Meiji (1870) and the step taken was conspicuously effective in reforming to a degree the silk industry of this country. Still the evil practice, so long allowed to grow and become established, was difficult to be entirely got rid of but the Government certainly tried to effect its suppression, by amending and reframing the laws and regulations bearing on the industry. These efforts on the part of the Government had, however, the misfortune of causing an outcry to be raised about unnecessary official interference. The cry had become so loud in Meiji 10 (1877) that the Government was compelled, in that year, to repeal all the enactments it had made in this connection and to leave the people entirely free, so far as the silk industry was concerned. This turn of affair gave opportunities to not a few unscrupulous parties to deftly and fraudulently mix inferior with first-rate goods and thereby secure large profits. To suppress this practice, the authorities of the principal silk-producing prefectures tried to enforce various restrictive measures but the attempts mostly ended in failure, and the once good name of Japanese silk came to fall very low indeed abroad. In Meiji 16 (1883) the Government convened a meeting of those well experienced in sericulture. The meeting was held in the Department of Agriculture and Commerce and the Government sought the views of those present on the question of the filature industry. On several occasions subsequently, more meetings, taking the forms either of competitive exhibition or of conversaziones, were held and on the strength of the report made and the answers received at these gatherings, the Government in Meiji 18 (1885) drew up a model set of regulations for the formation of silk guilds, and distributed these regulations among the prefectural authorities, in order that the latter might each frame sets of regulations to suit the requirements of his own particular district. The consequence was the organization of guilds among those interested in the matter in each locality. In the chapter devoted to Industrial Legislature, given later on, the working of the regulations in

question will be found described in some detail. The embodiment of these regulations with the Law of Guilds dealing in Staple Export Goods which was amended three years after as the Law of Staple Produce Guilds took place in the 30th year of Meiji. In a similar way for particulars about the silkworm egg inspection regulations and the establishment of Silk-conditioning Houses the reader is referred to the paragraphs specially devoted to these two subjects. It may be stated here that the Law for Encouraging the Direct Export of Raw Silk had to be repealed soon after its issue in Meiji 30 when it was discovered that some of the provisions contained in it were at variance with the operation of the revised Treaties.

As regards the method of feeding and rearing the silk warm and its gradual progress, there is no record to be referred to; except the words of Prince Shotoku, who is said to have told sericulturists that they should rear their worms just in the same way as parents nurse and bring up their infants; that they should think of their worms as they think of their own children; that in adjusting the temperature for the worms, they should judge of what suited them best, making the room neither too warm nor too cool, while giving it good ventilation; and that they should lavish the utmost care on the worms both day and night. The ideas embodied in this teaching of Prince Shōtoku are exactly what are being taught and acted upon to-day and it is remarkable that sericulture should have attained in those early days such a high stage of development as to have evolved these ideas. According to "Kaiko Yōiku Tekagami" published in the 2nd year of Shōtoku (1712) "fire-heating" was already then a common practice in sericulture in Gumma District of Joshū, and considerable progress had apparently been made in the method of rearing the worm. In Tempo 13th (1842) the use of the thermometer was for the first time introduced in the work of sericulture, in Date-gori in Ōshū, and the practice came afterward to be gradually followed by the worm-raisers throughout the country. This new departure forms another step forward in the progress of the industry. As for what led to the application of science on

this industry, it was the Word's Fair at Vienna, Austria, in Meiji 5 (1872). The officials who attended the Fair, came home more or less *au fait* of the scientific side of sericulture, as taught in Austria and Italy. Acting on the representations of these officials, the Government caused a sericultural laboratory to be established at Naito-shinjuku, a suburb of Tokyo, in Meiji 7 (1874) but for a certain reason the place was closed not long after. In Meiji 17 (1884) the Government opened in Tokyo the Sangyo Shiken-ba (Silk-worm Disease Laboratory) and three years later in Meiji 20 (1887) had it removed to Nishigahara in Kitatoshima-gori (Tokyo-fu), changing its name to the Sangyo Shiken-ba (Sericultural Laboratory). All sorts of investigations connected with sericulture were carried out here and young men sent up by sericulturists throughout the Empire were instructed in the art of silk-worm raising. Furthermore, the Laboratory having from time to time made public the results of its investigations the institution soon proved of very great importance to the sericultural interests of the country. About this time, those interested in the industry in the provinces of Fukushima, Gumma, Nagano and Saitama,—provinces which had had a considerable start of the others in the art of sericulture—started sending out travelling instructors and otherwise took steps to revive and develop the industry, and these things all contributed largely towards its progress.

From the above brief history of the sericultural industry in this country it will be seen to what a great extent the Imperial Court and Government have always encouraged and protected the industry. In addition to these circumstances the climatic conditions of the country as well as the natural inclination of its people have been favourable to the progress of the industry, while the growing taste for silk fabrics in the West of late years and the consequent demand for raw silk have greatly added to the prosperity of the sericultural industry, the area of which now extends from Okinawa in the south-west to the confines of Hokkaidō in the north-west. The following is a resumé of the condition of the industry as reduced to figures in Meiji 34 (1901) :—

Silk worm raisers, (No. of families engaged)	2,475,819
Egg cards (No. manufactured)	3,856,683
Cocoons (in *koku*)	2,526,181
Egg cards manufacturers (by family)	18,138
Silk "seeds" examined { those for manufacturing purposes—in cards	5,381,340
Silk "seeds" examined { those for breeding purposes—No. of moths	39,381,461
Raw silk manufacturers (No. of)	421,941
Raw silk output (in *kin*)	10,972,981
Raw silk exported (in *kin*)	8,697,706

Thus it will be seen that silk-producing forms one of the most important industries of Japan. Indeed silk comes close after rice in importance as an article of domestic production while as an article of export it has no compeer. It may even be said that silk holds the balance of Japan's foreign trade.

We might here cast a grance at the general condition of the silk industry in the world at large. The principal other countries which produce silk are, as is well known, Italy and France in the West and China in the East. Both Italy and France are noted for the good quality of silk which they produce but their economic conditions seem to be such that no further increase in the quantity of silk produced in them is at present to be expected. As for China, she stands at the head of the list of silk-producing countries but in quality her production is so poor that it hardly comes up to the standard required by the silk weavers of Europe and America. Under these circumstances it is important to note that the world's demand for silk fabric is yearly increasing and that the silk industry in Japan is becoming proportionately more important so as to deserve increased encouragement and protection.

II. PRESENT CONDITION OF SERICULTURE.

Rearing season :—It has already been shown how sericulture formed a national industry in early days, silk forming an article of common wear, how it declined during the "Dark Ages" and also under the Tokugawa Shogunate owing to the sumptuary laws that were passed under that régime, law which

are almost by the way an exact counter part of those passed in England about the same time, and how the industry has revived in the new era of Meiji. In the latter respect the provinces of Nagano, Gumma, Fukushima and Saitama, all of which were, comparatively speaking, devoid of good paddy land, were the first to adopt sericulture as the principal industry of the inhabitants. In these provinces there were people in the beginning (after Restoration) who had had extensive apartments built for sericultural purposes and attempted to employ large numbers of employees in order to carry out the industry on an extensive scale. These people forgot, however, that silk worm rearing was really a work of 30 or 40 days and that the proceeds therefrom could never be sufficient to afford them a livelihood for the whole year and that therefore, to apply to sericulture Sir Walter Scott's remark with regard to literature, silk-worm raising might be made a good staff but would assuredly prove a bad crutch.

These things in addition to the recent rise in wages having gradually come to be understood by those concerned, there has in late years grown up a tendency to carry on sericulture as a subsidiary occupation instead of as a main industry. Especially since the Japan-China war of Meiji 27-28 (1894-5) this tendency has gone on increasing. Sericulturists have come to see the profitableness of "farming" on a reduced scale for Spring, Summer, and Autumn "crops," rather than carrying in on a large scale, the rearing all at once in Spring alone. The statistical figures in this respect for Meiji 34 (1901) were as follows :—

Season.	Cards hatched.	Cocoons obtained (in *koku*).
Spring crop (per raiser on average)	1.7	1,201
Summer „ „	1.2	648
Autumn „ „	1.5	818

Mulberry farms :—The mulberry farm of the country is on the whole on the increase and keeps pace with the progress of the sericultural industry. The method of cultivating the plant differs according to the climatic conditions of the different localities. In the north-eastern districts where a comparative-

ly low temperature prevails the plants are allowed to remain unpruned all the year round; but in the south-western provinces where the climatic conditions are quite the opposite, the shoots are pruned close to the root, while in the "Kwanto" districts the pruning is done close to stem which is allowed to grow to a certain height. Besides in the mulberry farms as such, the tree is also very largely cultivated so as to form fences, the borders, etc., of farms and farm houses, it being estimated that the supply of mulberry leaves obtained from these sources forms about a quarter of the whole stock yearly consumed for sericultural purposes throughout the country. The following is a statistical representation of the mulberry farm industry for the ten years ending Meiji 34 (1901):—

Year.	Mulberry farms as such:—in *cho.*	Mulberry trees otherwise grow and estimate:—in *cho.*	Total:—in *cho.*
25th	167,199.8	64,201.0	231,400 8
26th	176,218.4	67,140.4	243.358.8
27th	184.772.6	69,117.2	253,889.8
28th	189,909.2	76,255.1	266,164.3
29th	208,047.8	80,889.2	288,937.0
30th	220,008.5	78,195.4	298,203.9
31st	221 603.6	82,709 1	304 312.7
32nd	221,862.9	77.733.0	299,595 9
33rd	222,731.1	78,058.0	300 789.1
34th	228,202.3	75.257.1	303 459.4

METHOD OF REARING:—There is no question that the "silk-worm" was originally a caterpillar feeding on mulberry leaves. At an unknown age man discovered the art of artificially raising it and of utilising the production of its cocoons, that art attaining subsequently various stages of development until it has now reached the stage in which the heat of a fire is employed. It may be said, however, that the method of rearing the silk-worm is not uniform even at present. Some do not at all use "fire heart" having the entire process to the conditions of the weather, this method being called the "natural method." Others would have every thing dependent on artificial heating and their method is called "the warm rearing system," while the third group would resort to both of the means above mentioned, and theirs is called the

"conventional method." It goes without saying that the "natural method" was the original one, first resorted to in the earliest days of sericulture. Of this method, however, the disadvantages are that the growth of the worm is slow and that the quality of cocoons obtained are often not of good quality.

The "warming rearing system," on the other hand, accelerates the growth of the worm—in a very much less number of days than the other method—and a greater quantity of raw silk may be secured thereby, but the disadvantage of this method is that the worms are often weak in constitution and liable to produce cocoons af unexpected character. For these reasons, the method most extensively followed throughout the country at present is the "conventional."

Economy:—While the economy of silk raising cannot help being affected by the fluctuations in the prices of commodities in general, as also by the condition of the cocoon crop of the year, the profit shows a gradual diminution owing to the general tendency, of late years, of the prices to rise. The following may be given as a fair estimate of the profit and loss of the industry at present:—

EXPENDITURE.	*yen.*
"Seed" Eggs (1 card)	1.500
Mulberry leaves { 200 *kwame.* / 10 *sen* per *kwame.* }	20.000
Workers Wages { 5 men, 30 *sen* each / 30 women, 20 *sen* each }	7.500
Workers Board (12 *sen* per capita)	4.200
Miscellaneous expenses (charcoal, tallow, oil, bobbins, etc.) ...	5.000
Rent { Rearing room 47 *yen* / Utensils 80 *sen* }	4.800
Interest { 7 p. c. per annum or the working capital for 2 months	.446
Total	43.446

RECEIPTS.	
First class cocoon (8 *to* at 4 *yen* 50 *sen* per *to*)	36.000
Middle class cocoons (1 *to* 5 *sho* at 2 *yen* per *to*)	3.000
Third class cocoons (5 *sho*, 1 *yen* per *to*)	.500
Ditto, punctured (1 *to* 5 *sho*, 1 *yen* 50 *sen* per *to*)	2 250
Carcass crisalis (1 *koku* 8 *to*, 1 *yen* per *koku*)	1.800
Mulberry shoots (20 bundles, 5 *sen* per bundle)	1.000
Total	44.550
Nett Profit	1.104

Thus calculated, the nett profit dwindles down to very insignificant figure; but sericulture being, as a rule, carried on by the farmer as a by-industry and one of the rooms of his own dwelling being employed as the rearing room, while the members of his own family attend the worms, what are given above as items of disbursement, constitute in effect his own earnings or at least the earnings of his family, with the exception of the prices paid for the "seed" eggs and mulberry leaves.

THE OUTPUT:—The quantity of cocoons obtainable differs, of course, according to the crop condition of the year; still on the whole the quantity is on the increase, owing to the progress made in the art of sericulture, the increase being especially notable in the case of autumn cocoons, as may be gathered from the following statistics for the ten years mentioned:

COCOON CROP FOR THE WHOLE OF JAPAN.

Year.	Total. *koku*	Spring crop. *koku.*	Summer crop. *koku.*	Autumn crop. *koku.*
25th...	1,480,705	1,124,222	252,079	104,404
26th...	1,686,894	1,225,018	328,591	133,285
27th...	1,797,842	1,257,836	373,996	166,010
28th...	2,258,173	1,697,803	324,028	236,342
29th...	1,831,378	1,384,411	255,438	197,529
30th...	2,121,944	1,654,722	273,257	193,965
31st...	2,027,339	1,504,351	301,393	221,565
32nd	2,512,562	1,817,936	373,142	320,484
33rd...	2,753,913	2,029,806	377,466	346,631
34th...	2,526,181	1,798,672	345,617	381,892

CROP RATIO OF EACH SEASON.

Year.	Spring crop. percentage.	Summer crop. percentage.	Autumn crop. percentage.
25th	76	17	7
26th	72	19	9
27th	70	21	9
28th	75	14	11
29th	75	14	11
30th	78	13	9
31st	74	15	11
32nd	72	15	13
33rd	74	14	12
34th	71	14	15

No cocoon is at present sent abroad from Japan and the entire output is consumed at home as material for weaving silk fabrics and also for the purpose of manufacturing raw silk for exportation. At the same time from 500 to 600 thousand *yen* worth of cocoons is yearly imported from China and the greater part of the importation consists of donppions cocoons, which are turned into floss silk and silk thread. The Chinese cocoons were imported as follows:

Year.	*kin.*	Year.	*kin.*
30th	713,929	33rd	598,999
31st	458,617	34th	441,371
32nd	807,762		

III. EGG CARDS MAKING.

History:—In the earlier days there were apparently no egg cards manufacturers, separate from the sericulturist, the latter doing his own work of selecting the good cocoons out of his own crop for "seeding" purposes. Nor can any exact data be given as to when the egg-card-making came to form a specialty. It is on record, however, that in the Genroku era the district of Uyeda in Shinshū and the various provinces in Kwanto and Ohshū, were already in the habit of sending out to and supplying the other parts of the country with the "egg card." What, in modern times, brought about the sudden prosperity of this special industry, was the prevalence of the silk worm epidemic, in Europe, which created a demand for Japanese "cards." It was at the time when the *shizoku* or the retainers of feudal lords under the old régime, were deprived of their permanent pensions, that had been, therefore, the means of living, that this new demand came, and the gentry folk took up the business of the egg card making, as if with one accord. The subsequent decline in the exportation of the "cards," as already told, almost ruined the entire egg-card industry of the country. Since then, however, with the progress and prosperity that have attended the sericultural industry in general, the special industry in question, has also revived to such an extent that there is not a locality throughout the Empire which does not possess its own egg-card manufactures, as the following table shows:—

NO. OF EGG CARD MANUFACTURES THROUGHOUT JAPAN.

Year.	For Spring hatching.	For Summer and Autumn hatching.
31st...	16,785	7,577
32nd	16,409	7,759
33rd	16,324	7,587
34th	13,745	8,939

THE NURSERY PROCESS:—The progress attained, especially on the scientific side, of sericulture has now come to make it an established principle among those interested in the industry that, in the cultivation of the worms for egg purposes, the temperature should not be artificially raised.

As for fighting the silk worm epidemic, Pasteur's grainage cellulaire method was improved upon and remodelled as the result of investigations carried at the Sericultural Laboratory and this improved method has since proved itself a very efficient means for the purpose for which it was devised. Then the enforcement of the Silk Worm Egg Examination Regulations proved another means of preventing the epidemic from spreading, while on the other hand the examination carried out under that Regulation had also the satisfactory result of raising the standard quality of the eggs. The following table will be interesting in this respect, Meiji 31 being the first year in which the Regulations just mentioned were put in force.

Year.	Spring breed.		Summer and Autumn breed.	
	Passed.	Rejected.	Passed.	Rejected.
	percentage.		percentage.	
31st	79	21	75	25
32nd	82	18	75	25
33rd	82	18	80	20
34th	88	12	87	13

ECONOMY OF EGG-CARD MAKING:—The making of egg-cards requires the utmost skill and experience, in addition to the most painstaking care, while the manufacturer must necessarily be guided in this work by a strong sense of responsibility. A manufacturer thus qualified would consider the following a fair estimates of the ins and outs of his industry:—

DISBURSEMENTS.

	yen.
The "seeds" (100 encased moths at 3 *sen* per head	3.000
Mulberry leaves (220 *kwan* at 10 *sen*)	22.000
Workers' hire (10 men at 30 *sen* each, 30 women at 20 *sen* each)	9.000
Workers' board (12 *sen* a day on an average	4.800
Rents (room 4 *yen*, utensils 86½ *sen*, apparatus 4 *yen*)	8.865
Interest (on the working capital for 2 months at 7 p.c. annum)..	522
Card paper (60 sheets 3 *sen* each)...	1.800
Miscellaneous expenses	6.800
Total	56.787

RECEIPTS.

Proceeds (6 *to* of cocoons and 60 egg cards at 1 *yen* 20 *sen*) ...	72.000
Thread Cocoons (2 *to* at 3 *yen*)	6.000
Donppions 同功 (1 *to* 5 *sho* at 1 *yen* 50 *sen*)...	2.250
Third class Cocoons (5 *sho* at 12 *sen*)	.600
Punctured Cocoons (6 *to* at 1 *yen* 20 *sen*)	7.200
Carcass crisalis (about 2 *koku* at 1 *yen*)...	2.000
Waste mulberry shoots (about 22 bundles)	1.100
Total	91.150
Nett Profit	34.363

YEARLY PRODUCTION OF "SEED CARDS":—The yearly production of "seed cards" is also on the increase in quantity along with the progress of the sericultural industry in general, as may be seen from the following table which gives figures for the years subsequent to the enforcement of the Seed Cards Examination Regulations:—

Year.	For Spring hatching.		For Summer and Autumn hatching.	
	For manufacturing purposes. Cards.	For reproductive purposes. Moths.	For manufacturing purposes. Cards.	For reproductive porposes. Moths.
31st	2,559,424	20,572,497	165,394	3,949,821
32nd...	2,877,532	21,242,568	227,836	4,579,913
33rd	3,124,894	27,530.491	277,300	5,922,683
34th	3,378,718	31,239,854	2,002,622	8,141,607

In the above table the figures are only for those cards officially examimined and they not consequently include those made for private use.

IV. FILATURE.

History :—Formerly the reeling of raw silk having been carried on as a subsidiary business by the farmer, the method employed was confined to hand-reeling and the product so obtained were of the coarse kind unfit for the foreign market.

Owing to the latter reason the Government established, as already mentioned, a model filature at Tomioka-machi in Gumma prefecture. The example thus set before them led those interested in the industry to starting similar establishments on the factory system throughout the country. Even those who were previously contented with hand-reeling, now took up the frame reeling and adopted the practice of selling their product jointly by unifying its quality. This was decidedly a step forward in the progress of the industry which soon came to be recognized by the farming class as an important by-business. According to the official returns for Meiji 33rd, 6,193,869 *kin* of silk were turned out by the machine reeling, against 4,779,575 *kin* by frame reeling. It is misleading, however, to say that filaturing constitutes a by-industry whenever it is carried on by frame reeling, because there are establishments managed after the fully developed factory system and yet employing the frame reeling method. While it is not yet exactly known, how many establishments of this latter kind there are in the country, the statistical returns for the year above mentioned show that in that year the country had 2,072 machine reeling factories, employing 122,116 pans against 597 frame reeling establishments employing 55,022 pans, the figures being in each case for factories that employ 10 workers or more.

Preservation of the Cocoons :—Owing to the fact that the climatic conditions of Japan are not like those of continental countries where a comparatively high temperature prevails the preservation of cocoons often proves to be a very difficult affair, cases of the deteriolation of entire stock, which means a great loss to the owners, not being infrequent. The proper preservation of cocoons forms, therefore, a very important problem. In former days sun-drying was the only method adopted in this respect. The Tomioka Filature was the first to test the baking process but this

method, too, did not give satisfactory results, owing to the climatic peculiarities of the country. Of late, however, many and valuable inventions have been made well answering the purposes of crysalis killing and the subsequent long preservation of cocoons so treated.

THE REELING :—There is no question that the Tomioka Filature proved to be a model establishment and that it fully satisfied the expectations that had been formed of it. It was after a European model and many of the schemes tried in this establishment and imitated at others only proved their unfitness for general adoption in this country. So there came consequently a period of continual changing from one system to another, a conspicuous instance of this kind being the adoptation to a very large extent of the "Kennel" method in place of the "Champon" system and also of "double" instead of "direct" reeling. Very significant progress has also been made in the art of reeling itself, since the opening of the model institution, the following figures furnishing eloquent proof of this statement.

AVERAGE PRODUCE PER PAN.

Year.	Machine reel.	Frame reel.
33rd	48 *kin*	27
29th	29 „	19
26th	39 „	22
Increase in 33 as against 29...	9	8

ECONOMY :—In this as in all other industries, the skill of the workers and the cost of the raw stock count for every thing. It is undeniable, however, that the recent general rise in the prices of commodities has also tended to increase the cost of production in filaturing. Below is a table showing the average cost of production per 100 *kin* of raw silk.

Year.	Machine.	Frame.	Average.
	yen.	*yen.*	*yen.*
33rd	156	129	143
29th	126	108	118
26th	110	82	96
Increase in 33 as against 29 ...	30	21	26

It may be interesting to give in this connection a detailed list of the item of expenditure and receipt in filaturing. The following is such a list, the calculations being made on the basis of 100 *kin* :—

MACHINE REEL.

EXPENDITURE.

	yen.
Cost of cocoons—16 *koku*	640.000
Girls' wages—267 reelers each 6 *sho* of cocoons and 10 others doing the rest of the work...	41.000
Girls board	27.700
Employee's salaries	14.750
Packing expense	1,000
Fuel—7,500 *kin* of coal...	17.250
Miscellaneous expenses...	5.000
Freightage—From Joshū to Yokohama	1.000
Insurance 1/10 p.c...	.820
Commission—1 p.c.	8.500
Jinrikisha fare...	.200
Cost of examining weight	1.000
Draft discount—5/10 p.c.	4.000
Interest on invested capital... of say 12,000 *yen* at 10 p.c., the total yeary production being 3,000 *kin*	40.000
Working capital of say 760 *yen* 50 *sen* for 6 months at 10 p.c. a year	39.000
Total	842.548

RECEIPT.

Proceeds from sale of raw silk	850.000
„ „ Noshi and other by-products...	20.000
Other incidental yield	1.000
Total	871.000
Nett profit	28.452

FRAME REELING.

DISBURSEMENTS.

	yen.
Cost of cocoons—16 *koku*	640 000
Wages—Girl workers	57.000
Salaries—Officers and Employees	12.000
Packing Expenses	1.000
Fuels	12.000
Miscellaneous Expenses	3.000
Insurance—From Joshū to Yokohama	1.000
Commission—one per cent.	7.850
Jinrikisha fare...	.200
Weighing fee	1.000
Draft discount 5/10 p. c.	3.925
Interest on invested capital of say 2,050 *yen*	20.500
Interest on working capital of say 739 *yen* 70 *sen*	39.984
Total	797.744

RECEIPTS.

Proceed from sale of raw silk	785.000
„ „ „ Noshi and other by-products	17.000
Other miscellaneous income	1.000
Total	803 000
Nett Profit	5.356

ANNUAL AMOUNTS OF PRODUCTION AND EXPORTATION:—While it is unavoidable that there should be differences in the amounts of annual production of raw silk owing to differences in "crop" condition and also in those of proceed therefrom according to market condition, there is no question that on the whole the amounts are on the increase, being encouraged no doubt by the growth of the export trade, as the following table will show:—

Year.	Amount produced in *kin.*	Amount exported in *kin.*	Amount realized in *yen.*
Ansei 6th	—	487,625	—
Manyen 1st	—	812,780	—
Bunkyū 1st	—	922,424	—
„ 2nd	—	2,414,914	—
„ 3rd	—	1,294,719	—
Genji 1st	—	1,348,164	—
Kei-ō 1st	—	941,602	—
„ 2nd	—	1,101,546	—
„ 3rd	—	1,000,117	—
Meiji 1st	—	1,123,951	—
„ 2nd	—	726,046	5,720,182
„ 3rd	—	683,362	4,278,752
„ 4th	—	1,323,435	8,004,144
„ 5th	—	895,500	5,205,237
„ 6th	—	1,202,134	7,208,421
„ 7th	—	979,193	5,302,039
„ 8th	—	1,181,387	5,424,916
„ 9th	—	1 864,249	13,197,921
„ 10th	—	1,723,004	9 626,956
„ 11th	2,266,294	1,451,235	7,889,446
„ 12th	2,782,375	1,638,198	9 734 534
„ 13th	3,331 044	1,461,619	8,606,867
„ 14th	2,881,850	1 801,181	10,641,310
„ 15th	2,850,806	2,884,068	16,232,150
„ 16th	2,855,900	3 121 975	16,183,549
„ 17th	4,492,356	2,098,398	11,007,172
„ 18th	3,174,925	2,457,203	13,033,872

Year.	Amount produced in *kin.*	Amount exported in *kin.*	Amount realized in *yen.*
Meiji 19th	4,592,525	2,635,294	17,321 361
„ 20th	5,124.788	3,103.584	19,280,002
„ 21st	4,148 891	4,677,708	25,916,860
„ 22nd...	5 511,041	4,126,741	26,616,541
„ 23rd	5,425.425	2,110,315	13,859,339
„ 24th	6,799,850	5,325,148	29,356,339
„ 25th	6,850.550	5,406,856	36,299,744
„ 26th	7 709,713	3,712,213	28,167 411
„ 27th	8,104,894	5,484,059	39 353,156
„ 28th	10,020,694	5,810,046	47.866,257
„ 29th	9,017 000	3,918.994	28,830,600
„ 30th	9,609,756	6,919.861	55 630,460
„ 31st	9 248,416	4,837,329	42 047,411
„ 32nd	10,964,013	5,946,911	62,627,721
„ 33rd	10,973,444	4,630 903	44,657,029
„ 34th	10,972,981	8,697,706	74,667,331

Demand and supply :—The United States of America is decidedly the best customer of Japanese raw silk, that country taking 50 per cent or more of the whole amount exported. Next comes France, and then Italy. Other countries buy comparatively little of Japan. The raw silk imported by France and Italy is not all used up in these countries but is re-exported te Switzerland, Germany, Russia, and other places. The destinations of Japanese raw silk after its exportation may be tabulated as below :—

Destinations.	20th year in *kin.*	31st year in *kin.*	32nd year in *kin.*	33rd year in *kin.*	34th year in *kin.*
U. S. A.	3,945,157	2,911,240	3,820,477	2,642,918	5,142,376
France	2,565,499	1,630,654	1,803,464	1,200,838	2,035,818
Italy	294,518	218,652	260,298	669,484	1,341,913
England	26,945	36,491	28,663	45,658	17,105
Switzerland	70,272	625	3,677	1,029	7,579
Hongkong	—	—	—	2,218	—
Canada...	—	—	—	18,912	62,113
Russia	17,457	39,663	30,337	49,846	82,234
Other countries ...	12	4	2	1	8,568
Total	6,919,861	4,837,329	5,946,611	4,630,903	8,697,706

Besides the above, waste raw silk is annually exported to the extent of about four million *yen* in value.

It may be noted here, that, the amounts of Chinese raw silk

and wild silk cocoons has considerably increased of late years, the importation now aggregating to the value of about one million *yen* a year. The Chinese raw silk is, as compared with the Japanese article, inferior in quality, but its price is lower and it is used for weaving fabrics of home consumption. For a similar reason the wild silk cocoons are said to be imported and reeled, also for similar purposes. The following gives the amounts of the importation from China :—

Year.	Chinese raw silk in *kin*.	Chinese wild silk cocoons in *kin*.
30th	3 086	5,038
31st...	7,606	15,760
32nd	168,839	151,850
33rd...	3,288	148,237
34th...	631	213,018

The statistics above given conclusively prove that the future of sericulture in Japan in all its branches is brighter than ever. While now and again one hears of the complaints that the increase in wages is eating up all the profit formerly obtained from the industry, it seems nevertheless almost certain that better economy and more business-like methods in carrying on the industry will soon remove all these causes for complaint.

TEA MANUFACTRING.

History of Tea Industry :—The plantation of the tea tree in Japan first tookplace in Yenreki 24th (805) when Denkyo Daishi who had crossed over to China for the purpose of completing his study of Buddhism, came home with some tea shrubs and planted them in a place called Daino-fumoto in the province of Ōmi. In the following year—Daido 1st—the famous Kōbō Daishi returned from China also with a supply of tea plants. In addition to this he also brought with him the art, which he had learned on the continent, of preparing tea leaves for the purposes for which they are now used. Subsequently in Ko-nin 6 (815) the Imperial Court ordered the plantation of tea trees in the provinces of

Kinai, Ōmi, Tanba and Harima and also ordered these provinces to send on annual tribute of manufactured leaves to the Court. This was the beginning of tea planting and manufacturing in Japan. The use of tea as a beverage, dates further back, however, by at least 76 years, for the Court calendar of those days already makes mention of the celebrated tea ceremony. The latter fact would show that tea was already used at that time among the royalty and nobles. On the other hand, the Buddhist priests have always made use brewed tea as a necessary article of their ritual and it is more than probable that the subsequent popular use of this particular kind of beverage originated in this religious practice.

The method of tea making as taught of Kōbō Daishi on his return from China, was to pick the tea twigs and leaves, steam them and then pound them with a pestle and mortar, afterward making the crushed matter thus obtained into balls. The balls were dried over a fire and then ground into a powder, which was thrown into hot water and stirred up, before it was drunk. That the grinding stones were in use in those days is evident from the fact that there is still to be seen among the old relics, preserved in the Hōshōji Temple of Yamato, a set of these stones which Kōbō Daishi is said to have brought with him from China.

In subsequent years the Imperial Court encouraged the industry of tea plantation laid out within its "forbidden" precincts.

The above facts relate only, it will be seen, to the earliest period of tea-making in Japan. For 400 years or so after its introduction, the use of tea as a beverage was confined to nobles and to the religious orders.

Another Buddhist priest named Eisei-Jenshi who returned home from China in Kenkyu 2nd (1191) brought with him a quantity of seeds of tea-plant and planted them in Mt. Sefuri, Chikuzen. He also introduced a new mode of curing. that is to say, pan-curing. His disciple Meikei took a quantity of the seeds from the Sefuri plot and planted them

at Togano and Uji, thus laying the foundation of the now flourishing tea industry of Uji.

The planting of tea and the custom of using this beverage spread apace. The custom was still, however, as it was for a long time after its introduction to Europe, aristocratic, and was practically confined to the wealthier classes and to the priests. In course of time the custom of tea-drinking began to wear an aspect of something like a ceremony, with a nice and strict canons of etiquette to surround it. It was during the time of the Shogun Yoshimitsu of the Ashikaga Regency that these canons were nicely elaborated by a man named Shuko, and thus the so-called tea-ceremony were first drawn up in a regular form. A special class of persons whose business it was to teach the details of this ceremony next began to make their appearance, and these persons, called "masters of tea-ceremony," occupied an important place in the estimation of the public. In fact all matters relating to social etiquette were practically in charge of these "tea masters," and every feudal baron kept in his service one or more such "masters" upon whom he bestowed a regular salary. Thus the tea ceremony finally came to play an imporant part in society as a regulator of social etiquette and as a means of promoting friendship. A big tea-ceremony meeting was a favorite occasion for bringing about meetings and reunions among warriors, courtiers, and other people in the higher ranks of society, and it can not be denied that the strict and sometimes graceful rules enforced by the ceremony tended very much to soften the blunt and rough manners of the warriors inured to hardships and horrors of battles that occurred very frequently during the later period of the Ashikaga Regency. Nobunaga who succeeded in suppressing the civil strife and Hideyoshi who rose after Nobunaga were both great patrons of the tea cult. No money was spared on the vessels used for the ceremonials, and porcelain bowls and other earthenwares were specially sent for to Luzon, Cochin-China, and China. Hideyoshi very often gave such vessels to his captains when he wished to reward them for distinguished services

and, in the houses of the captains, they were afterwards preserved as valuable heirlooms.

As might have been expected, the tea ceremony attained great popularity on the advent of the Tokugawa Regency, and during the period of peace lasting for about three centuries which prevailed under that régime.

Only two kinds of tea were in use till the time of the Tokugawa, namely the pounded tea and pan-fired tea. It was not till Genbun 3rd year (1738) that a new mode of curing tea was invented by a manufacturer of Yamashino named Sannojo Nagatani. This mode, called at that time "green-curing," consisted in first steaming the leaves, rolling them, and then drying them at a fire, in such a way as to preserve the natural green hue of the leaves. This system of curing, a forerunner of the present Uji system, was received with favor throughout the tea-producing districts. The Gyokuro tea, a modified form of the "green-cured" tea, was first manufactured at Uji in Tempo 6th year (1835).

It will thus be seen that the original mode of curing tea consisted in steaming them, then pounding them, and finally rolling them into balls, after which the pan-firing process came into vogue. Next we have the powdered tea method, and then the Uji "green-curing," and lastly the Gyokuro-tea style. The black tea is the latest innovation, dating only about 27 years back.

Tea was first exported from Japan in the Hōreki and Meiwa eras (about 1750) by some Chinese merchants of Nagasaki. The opening of Yokohama and Kobe to foreign commerce inaugurated a new epoch for the export of our tea which found in those two new open ports and in Nagasaki regular outlet to foreign markets. At first our tea went both to England and America, but, on the development of the tea industry in Ceylon and India, England ceased to patronize the Japanese produce, so that from about the 4th year of Meiji America has been our principal customer.

Just as in the case of silk and other staple export commodities, the history of the export of tea is checkered, consisting as it does of ups and downs, the production and export of tea of bad quality, the inevitable decline, in consequence, of the volume of export, the holding of conferences by all those concerned in the industry to make

arrangements calculated to provide against this evil, and then the creation of guilds for the purpose. Further we see the appearance of companies formed with the object of undertaking the export of the goods direct to foreign consumers and thus dispensing with the services of the middle-men, that is of the foreign merchants resident amongst us, the invariable collapse of such companies, the dispatches both of the Government and by the guilds of a number of experts and merchants to Ceylon, China and other places to inspect the condition of the tea manufacture and the tea market in those countries.

The world's Fair at Chicago supplied an important occasion for advertising abroad the merit of our leaves, and the strenuous efforts made by our manufacturers and merchants at that time were attended by a satisfactory result. In other words the popularity of what may be called our national beverage in the United States and Canada was greatly increased. Meanwhile the arrangements for checking the appearance on the market of inferior tea and for the direct exportation of tea by our own merchants had been completed. These laudable and profitable exertions of our manufacturers and merchants were so much appreciated by the Government that in the 30th year of Meiji it granted for the time being a state aid of 70,000 *yen* a year towards the funds for expanding the foreign market of our tea. In compliance with the instruction of the Government the Central Tea Guild maintains at present branch offices in the United States, Canada, Siberia, France etc., and causes them to take charge of the business of investigating the state of the market in these places and of taking steps to expand the market for the goods.

This aggressive movement on the part of our tea-manufacturers aad merchants may well be regarded as constituting a new epoch in the history of our tea industry, for the export business had been almost exclusively in the hands of resident foreigners during the period of over forty years after the opening of our country to foreign trade in modern times. These merchants recured the goods before exporting it, and the men and women employed by them both in Yokohama and Kobe in the height of the tea season numbered or used to number tens of thousands.

The re-curing process is now carried on extensively in several tea-producing districts, and the Japanese establishments which are engaged in re-curing and in direct exporting now number more than eleven.

The process of re-curing and of manufacture has also been considerably simplified by the invention of several machines, among which may be mentioned those invented by Gensaku Harazaki of Shizuoka, Kenzō Takabayashi, Hatsutarō Mochizuki, Saikichi Kamo, Kiichirō Usui, Hatsujirō Nakatsu and others. The tea manufacturing machines, large and small, number over 1,000, and then enable our manufacturers to produce their goods with less cost and labor than before. Nor does the Government neglect to devise measures for promoting the industry. It has for instance established since the 29th year of Meiji an experimental tea manufacturing workshop at Nishigahara, Tokyo, where all matters relating to the planting of the shrub and the manufacture of tea, as also to the improvement of tea-manufacturing machines are attended to.

Condition of the industry:—As in the case of the mulberry plant, the cultivation of the tea-plants is, carried out on large farms or rather plantations specially devoted to the purpose as well as in spare spaces about homesteads and in other kinds of land. The average under cultivation during the last seven years is given below.

Year.	Tea fields. *cho.*	Other lands. *cho.*	Total. *cho.*
28th	37,572.2	20,156.4	57,728.6
29th	38,810.1	20,669.0	59.479.1
30th	38,152.5	20,739.6	58,892.1
31st	37,483.3	21,164.7	58,648.0
32nd	37,917.5	19,965.6	57,883.1
33rd	31,889.5	17,376.6	49,266.1
34th	31,899.2	16 949.0	48,848.2

Shizuoka heads the list of tea-producing districts in the extent of acreage, and contains in fact a little over one-fifth of the whole acreage under tea in this country. Then follow Miye, Ibaragi, Kyoto, Kumamoto, and Fukuoka.

Kinds of tea:—Of the different kinds of tea manufactured

in Japan, the *Sen-cha* (ordinary green tea) and the *Ban-cha* surpass all the others in output and value, and they are followed in this respect by the *Gyokuro*-tea and black tea. The output of powdered tea, Olong tea and brick tea is far below that of those mentioned above. The output of powdered tea is particularly conspicuous in gradual falling-off. Details as to the output of the different teas are as follows :—

OUTPUT OF TEAS DURING THE LAST 10 YEARS.

Year.	Powdered. *kwam*	*Gyokuro.* *kwam.*	*Sen-cha.* *kwam.*	Black. *kwam.*	Olong. *kwam.*	*Ban-cha.* *kwam.*	Total. *kwam.*
24th	9,385	53 474	4,804,177	35,133	11,817	2,182,412	7,096,398
25th	9 025	60,626	4,925,842	34 917	9,187	2,172,268	7,211,865
26th	6,397	71,355	5,129,446	36,151	8,540	2,388,479	7,640,368
27th	4,435	105,402	5,144,733	48,661	17,244	2,562,757	7,883,232
28th	5,523	91,206	6,077 186	53,401	13,556	2,358 008	8,598,880
29th	4,550	70,340	5,974,209	37,894	16,848	2,396,552	8,500,393
30th	4,304	64,837	5,999,393	30,283	15 880	2,357,259	8,471,956
31st	4,219	70,586	5,919,738	36,069	18,911	2,392,195	8,441,718
32nd... ...	4,239	91,570	4,789,164	33,040	11,290	2,589,581	7,518,884
	?	480.565	9,823,637	46,345	14,433	1,076,111	11,441,091
33rd...	4,325	81,438	4,895 684	35,862	9,365	2,585,514	7,612,188
yen	30,725	428,519	5,120,669	69,756	12,891	1,002,162	6,664,725

The *Gyokuro*-tea is mostly produced in Kyoto and Niigata, black tea in Kumamoto, and other places in Kyūshū, *Ban-cha* in Tokushima, and *Sen-cha* in Shizuoka.

MARKET :—The home consumption of tea comprises the whole of the powdered tea and *Gyokuro* tea, and some of the *Sen-cha, Ban-cha,* etc. The *Sen-cha, Ban-cha* and black tea constitute the bulk of the teas which go abroad. The United States and Canada take most of the teas shipped abroad, while Russian Siberia takes a small quantity of black tea and brick tea. The distribution of our teas as to consumptiom is as follows :—

EXPORT AND AMOUNT OF CONSUMPTION AT HOME.

	Total output catty.	Import catty.	Total catty.	Export catty.	Home consumption catty.
24th	44,352,488	65,618	44,418,106	39,923,999	4,494,107
25th	45,074,156	61,439	45,135,595	37,518,202	7,617,392
26th	47,752,300	57,904	47,810,204	36,443,555	11,366,649
27th	49,270,200	52,186	49,322,386	37,453,587	11,868,799
28th	53,743,000	66,686	53,809,686	38,826,661	14,983,025

	Total output catty.	Import catty.	Total catty.	Export catty.	Home consumption catty.
29th	53,127,456	97,643	53,222,099	33,241,472	19,980,627
30th	52,949,725	119,617	53,069,342	32,632,683	20,436,659
31st	52,760,738	145,953	52,906,691	30,826,632	22,080,059
32nd	46,993,025	51,933	47,044,958	34,731,644	12,313,314
33rd	47,576,175	113,985	47,690,110	32,240,147	15,449,963

It may be noted that the teas imported come almost exclusively from China.

The ratio of distribution per 1000 as to value of the teas exported was as follows in the 33rd year:—

	Green tea. (*Sen-cha* and *Ban-cha*.)	Black tea.
United States	781	960
Canada	203	4
Siberia	—	13
Others	16	23
	1,000	1,000

As may be seen from the tables showing the output and the amount of export the progress of the industry is not quite satisfactory; on the contrary there are even signs of a decline, principally on account of the increase in the cost of production and the appearance of rivals in the foreign markets. In some districts the cultivation of tea-plants is being superseded by that of other shrubs, but in other districts tea-growing is beginning to become active. Judged from the state of affairs, more or less changes may take place in a few years in the *locale* of the tea districts.

The Government is, as has been pointed out above, doing its best to promote the industry, and besides granting a subsidy is adopting suitable measures for the improvements of the quality, for providing against the deterioration of the tea, and for keeping those interested in the industry well-posted with regard to the state of markets in foreign countries. The local authorities follow the example set by the central Government and are supplementing the efforts of tea-growers and manufacturers to push the industry to the state of greater prosperity.

CHAPTER VI.—Stock-Breeding.

History and Existing Condition.—Kind of Breed and Number of live-stock.

I. HISTORY.

Horned Cattle:—Scientific men agree that the horned cattle in Japan must have been introduced from foreign countries. Presuming this theory to be correct, the introduction must have taken place in some remote pre-historic period, for in the very earliest authentic record, we find many references, the rearing and utilization of cattle. What is specially worth mentioning is the fact that the slaughter of cattle both for food and for sacrifice was an ordinary occurrence in ancient times, so that it was not until after the introduction of Buddhism that the slaughter was forbidden under a severe penalty. The use of milk and even of butter was also known, and remained in vogue down to the period of the Restoration. These two articles, were, it should be noted, used as a sort of drug. Official pastures were established as early as the reign of the Emperor Ankan (534–'35 A.D.), while in the time of the Emperor Junna (824–'32) cattle could be used instead of currency in the payment of taxes. On the whole, however, cattle were almost solely used till the Restoration as beasts of burden and employed very little for other purposes.

The most noted cattle-rearing centres during the Tokugawa Regency were Tamba, Tango, Tajima, Inaba, Hōki, Oki, Izumo, Mimasaku, Bitchū, Bizen, Bingo, Iyo, Hizen, Higo, Iki, Hyūga, Ōsumi, etc. The inspection of horned cattle and horses was officially conducted there every spring.

Coming to the new régime we find that 15 foreign cattle were purchased at Yokohama from a certain English merchant in the 2nd year of Meiji. This purchase may be regarded as the first step in the work of improving cattle-breeding in Japan, as it was cer-

tainly the first time that such a purchase was made. The Meiji Government did spare neither money nor pains in encouraging the development of the industry, and till the 15th year the total sum of the loans advanced to cattle-breeders by way of encouraging the industry amounted to over 125,000 *yen*. At the same time, in order to show the public a model method of breeding, the Home Office established a pasture at Shimōsa. For use at this Shimōsa Pasture a large number of horses and sheep were imported, and were either hired out or sold for breeding purpose. Till the 18th year when the Pasture was transferred to the Imperial Household Department the number of cattle purchased for it totaled 175 bulls and 126 cows mostly of mixed breed. Then 126 bulls or cows were hired out and 44 others were sold.

The abolition of this Pasture as a Government undertaking tended very much to arrest the progress of stock breeding, but the ill effects of this step were counteracted when in the 33rd year of Meiji, the Government established a cattle pasture in Hiroshima-ken, as was described at greater length under the heading of State Cattle Pasture.

Horse :—The horse appears to have been indigenous to Japan ; at least its use for military purposes was known as far back as our authentic history goes. The present to the Japanese Court of several horses by a king of Kudara (part of Korea) in the 40th year of the Regency of the Empress Jingō (234 A. D.) was perhaps the first instance borne out by authentic record, of the introduction of horses of foreign breed into Japan. A similar present was repeated subsequently by one or other of the rulers of the three independent Kingdoms of Korea, as the peninsula was then divided. Meanwhile the Court paid much attention to the rearing of horses, and in the reign of the Emperor Daigo (898–'93) we find that a special office was established to take charge of this business and that of a large number of pastures existing throughout the country 39 were brought under official protection, and of that number 32 existing in Musashi, Kai, Shinano and Kōzuke were set apart for the use of the Court. No olden records about pastures in the north-eastern districts of Honshū are to be found, owing to the fact that these districts had not then been completely brought under the rule of the

central Government. The breeding, however, must have been equally prosperous there as in Kai and Shinano.

With what special importance horses were formerly regarded may be easily seen when it is remembered that they were often given as presents when the donors wished to manifest unusual respect. For instance history records the present of horses by Yoritomo to the ex-Empress Goshirakawa, and the same chief of the Genji clan also offered 1,000 horses to the Todaiji Temple on a certain occasion. These facts also serve to prove that the business of horse rearing must have been extensively carried on in the Kwanto districts, that is, the provinces lying east of Hakone, for Yoritomo fixed his vice-regal residence at Kamakura. The transfer of the vice-regal seat to Kyoto in the time of the Ashikaga Regency very much affected the prosperity of the horse breeding industry in the "Eastern" provinces.

Meanwhile as the result of establishment, on a limited scale it is true, of commercial relation between Japan and some of the European countries foreign horses were frequently brought into our country either as presents by the foreign merchants or at the order of one or other of the various departments of Government in Japan. Perhaps the present of a number of Arabian horses by some Italian and Portuguese during the Tembun era (1534–'54) was the first occasion on which horses were brought from such a great distance into the country. Such importation of foreign horses was especially frequent during the Tokugawa Regency. For instance, during the time of the eighth Shogun the Regency purchased 28 stallions and mares of Persian breeding, and distributed them for purpose of breeding among Koganegahara of Shimosa, Mineoka of Awa, Sannohe of Mutsu and others, at each of which places an important pasture existed. The present of 11 stallions and 15 mares of Arabian breed by Napoleon III in the 3rd year of Keio (1867) in return for the present of silkworm eggs made to the French Court by the Shogunate may also be mentioned here. Nothing in particular is known about what has become of those horses.

The Regency possessed 20 pastures of its own, among which those at Kogane, Sakura, Mineoka, and Ashitaka were most important. Among the feudal princes, those of Nambu, Sendai, Miharu,

and Kagoshima paid special attention to the business of horse-rearing, and some of them imported Persian or Java horses for improving the breed in their own dominions.

The Restoration was a turning point in the activity of this industry as it was in all the other branches of public activity. In the 4th year an American expert a Mr. George A.H. Hall was engaged and given charge of the stock and general farming, and at the same time two Japanese officials were dispatched to America to study the condition of horse-breeding and the various agricultural industries there. A pasture was soon established at Komaba and a stud at Shinjuku, both in the suburbs of Tokyo; and then another stud was established at Katori, Shimosa, where two foreigners were employed. This was soon combined with the sheep pasture that had existed in another part of the same province. Finally, as already mentioned, the Shimosa Pasture was transferred to the Imperial Household. A portion of the pasture was leased by the Department of Agriculture and Commerce and the breeding work was attended on a limited scale. Even this lasted for only a few years, and with the repeal of all the rules relating to the hiring out of breeding bulls and horses, the Government stock-breeding enterprise was entirely suspended.

The breeding horses imported by the Government from the 10th to 34th year were as follows:—

	Stallions.	Mares.	Total.
Trotter	27	17	44
Perchelon	3	2	5
Clydesdale	1	1	2
Australian	1	—	1
Hungarian	7	2	9
Arabs	9	12	21
Anglo-Arabs...	15	11	26
Thoroughbred	3	3	6
Hackney	5	4	9

In Hokkaidō especially while the old Board of Colonization existed, special attention was devoted to encouraging stock-breeding besides encouraging general agrcuiltural work. Mr. Horace Capron and two other American experts were engaged to take charge of the business. About 19 horses of Trotter breed and 8 of Perchelon breed were imported. The present activity of horse-breeding in the

celebrated Niikappu Horse Pasture, now belonging to the Court, was a result of the assiduous care which the Hokkaidō Board at first extended to stock-breeding.

The Army, again, undertook a similar enterprise on its own account, and by importing a large number of Arabs, Trotters, etc. hired them to the breeders with the object of improving the native breed.

Nor did general breeders care less about their business, on the contrary they also imported foreign breeding horses to a greater or less extent, the breeds selected for the purpose being Hungarian, Australian, Algerian, Anglo-Norman, Anglo-Arabian; but the returns as to the number thus imported are unknown.

For particulars about the revived interest taken by the Government and general public in horse-breeding, our readers are referred to the chapter on State Pasture and Studs given in the preceding section of this work.

Sheep:—Sheep did not originally exist in Japan, and indeed it was as late as the 14th of Bunkwa (1817), that the sheep-rearing was first undertaken in this country, a number of sheep having been imported in that year from China to Yedo. They were kept at the botanical garden in Sugamo, a suburb of Yedo. The wool obtained from those sheep was woven into carpets, and the Government of Yedo was able for the first time to supply itself with home-made carpets, the goods having always come previously from China and Korea. About forty years after, at the request of the magistrate of Hakodate forty sheep were sent to be reared there.

The history of sheep-rearing after the Restoration is practically identical with that of cattle-rearing or horse-rearing. It is enough, to state here that from the beginning of sheep-rearing in the 7th year and the transfer of the Shimosa Pasture to the Imperial Household Department, 5,250 sheep were imported, the number of lambs they gave birth being 10,335. The Pasture hired out 2,228 and sold 2,334.

So far the business of sheep-rearing by Government has generally been a failure, and it is only at the Imperial Household Pasture at Shimosa, the pasture belonging to the Sapporo Agricultural College, the Hokkaidō Pasture, and private pastures in Nagasaki and

Aomori that the rearing is continued to some extent. However there is no valid reason why this particular branch of stock-breeding should not succeed in Japan. Indeed the result obtained at the Shimōsa Pasture and in the provinces of Nagasaki and Aomori tends to prove the possibility of sheep-rearing being carried to success. It was evidently from this consideration that the proprietors of the Koiwai Pasture, Iwate-ken, opened in the 34th year this business of sheep-rearing by specially importing for that purpose some dozens of Shropshires from England.

Pigs:—Judging from the ancient records that the surname Ikai (swine-herd) was given to certain individuals in the reign of the Emperor Ankō (454–'56 A. D.), the rearing of swine must have been carried on in Japan from remote antiquity, the beast having probably been imported from either China or Korea. The prohibition of the slaughter of swine for food on account of religious prejudices was a death-blow to the breeding of this beast for slaughter, for we find that business soon disappeared from Japan. However, towards the beginning of the Tokugawa Regency, some people of Nagasaki got a pair of swine on one occasion from Chinese traders, and this led to the rearing of the beast being revived to some limited extent in Kyūshū. But it was in Okinawa that the business attained its greatest prosperity, owing partly, perhaps, to the fact that the people there very much resembled the Chinese in manners and customs. Even to-day Okinawa, except Formosa, shows the best record in swine-breeding of all Japan.

After the Restoration the rearing of swine was conducted as a subsidiary industry to that of cattle, horses and other domestic animals, and when in the 33rd year a Government cattle pasture was established, the business of swine-breeding was made subordinate to it. Ten pigs of Berkshire breed and 12 Yorkshires were imported from England. At the same time the growing demand for pork, both fresh or cured form, has very much encouraged the breeding of this beast for slaughter among the people.

II. KIND OF BREED AND NUMBER OF LIVE-STOCK.

HORNED CATTLE:—Strictly speaking there was only one original breed of cattle in Japan, chiefly because no care was taken in artificial selection. Indeed there was no need of any artificial selection, inasmuch as cattle were practically intended for the single purpose of serving as beast of burden. In this respect our cattle excellently served the purpose, being hardy and strong. But the neglect of care in breeding left its mark in the somewhat deformed appearance of our cattle, for though sufficiently well-shaped in the forward half they are rather ill-formed in the hind quarters. The hilly nature of the country had also no doubt something to do with this peculiarity in the shape of our cattle.

Though our original cattle are practically uniform in breed, they still admit of being broadly subdivided into two or three varieties, principally by color. One of them is black with small white spots on the belly, the second is brown, while the third is brindled with black and white spots. The black breed, which, by the way, is most valued by our people, predominates in the north-eastern districts and the middle section of Honshū, as also in Shikoku and Kyūshū; the brindled variety is found in Oki and Hirado and other islands, while the brown breed is generally found in the other parts of Kyūshū. Of the three the brindled cattle very much resembles in appearances to the Dutch cattle, and probably this variety may be the descendants of foreign cattle imported at some unknown time into Japan. They also possess comparatively well formed heads. The brown variety apparently came, originally, from Korea.

The breeding cattle imported since the Restoration from Europe and America must number over 10,000. In breed they were mostly Short-horns, Devons, Ayrshires, and Dutch. The number of breeding cattle during the last few years is shown below:—

Year.	Native breed.	Foreign breed.	Mixed breed.	Total.
30th...	1,579	477	342	2,398
31st...	1,669	525	431	2,625
32nd	1,684	575	533	2,792
33rd	1,680	514	692	2,886
34th...	1,805	489	811	3,105

In the 33rd year Shimane with 313 headed the list, followed next by Tottori, Okayama, and Hiroshima over 200 each, after which came Hyogo, Kagoshima, Yamaguchi, Fukuoka, and Nagasaki.

The birth-rate in a year is as follows, according to the latest available returns:—

	Cows.	Bulls.	Total.
Native breed	64,008	54,627	118,635
Foreign breed	11,872	9,670	21,542
Mixed breed	2,380	1,886	4,266
Total	78,260	66,183	144.443

In Hiroshima, Shimane and Okayama the births reach every year over 10,000 each, while in Hyogo, Tottori, Kagoshima, Ōita, Kumamoto, and Ehime the number exceed 5,000 each.

Lastly the existing number of cattle is as follows:—

Year.	Native breed.	Mixed breed.	Foreign breed.	Total.
24th	1,016,143	32,202	9,077	1,057,422
25th	1,043,789	42,224	8,786	1,094,799
26th	1,050,969	44,980	9,252	1,105,201
27th	1,033,384	47,701	10,284	1,091,369
28th	1,068,016	55,769	12,493	1,136,278
29th	1,066,126	69,898	13,737	1,149,761
30th	1,127,730	70,639	15 794	1,214,163
31st	1,135,968	79,157	15,351	1,230,476
32nd	1,139,466	95,924	14,475	1,252,865
33rd	1,127,016	115,021	19,177	1,261,214

At the end of the 33rd year Okayama and Hiroshima with over 90,000 each came at the head of the list, followed by Nagasaki, Hyogo, Kagoshima, Shimane, Yamaguchi, Ōita and Kumamoto with 80,000 to 50,000 each. On the other hand Ibaragi, Saitama, Tochigi and Toyama had each less than 1,000, Ibaragi with less than 500 coming at the bottom of the list.

Horse:—It is not possible to determine the original breed of horses in Japan. However, a breed of small pony found in Oki, Shikoku, Iki, Loochu, Awaji, and a part of Kyūshū and Hokkaidō is regarded as original variety by some experts. Certainly this breed seems to be the oldest variety in Japan. It is characterized by hardihood, by comparatively great strength and by enduring power.

However, the original breed or what is generally understood to be such in Honshū is larger in shape, measuring 4½ to 4.8 *shaku* in stature, and with a constitution and cast of head distinct from the smaller breed mentioned above. If therefore the latter should be regarded as the real original variety the other may be a mixed breed between it and an imported variety. As to the kinds of foreign cattle that were imported into Japan in olden days, the horses that were brought from Korea in ancient time belonged to the Mongolian breed while those that came into Japan during the Tokugawa Shogunate were horses of Persian breed. The former mostly produced horses of heavy type and the latter horses of light type. These two different types can be districtly seen to-day among our horses, the horses produced at Nambu and Akita belonging to the heavier type and those at Sendai, Miharu and Kagoshima belonging to the lighter variety. A brief description of those different varieties is given below.

a. NAMBU HORSES:—Horses produced at Aomori and Iwate are the largest of all in Japan (larger horses measuring over 5 *shaku*), have broad chests, strong bones and joints, and are mild in disposition, and possessed of great power of endurances. Horses of lighter type are used as mounts and those of heavier build as draught horses.

b. AKITA HORSES:—Produced at Akita-ken, they are somewhat inferior in build to the former with more or less defect in the proportion of the different parts of the body; have heavy head and long trunk, and are rather dull.

c. SENDAI HORSES:—The type of horse, bred at Miyagi-ken, is more slight in form than the Nambu horse. It has also a deep chest, an ascending tail, a small head, big sharp eyes, a long, weak, and slender bones. The blood of the Persian horses imported by a feudal prince of Sendai about 3 centuries ago evidently runs in the reins of these horses, but, owing to the greater intermixture of the foreign breeds that has recently taken place, the original characteristics are gradually being obliterated.

d. MIHARU HORSES:—Produced at Fukushima-ken they are mettlesome and hence better fitted for mounts than the

three preceding breeds. They have thin skin, small head, large eyes, and somewhat long neck. The chest and forelegs are strong, and the horses can raise their forelegs with great dexterity. They are not fitted for heavy work. These horses have also got some foreign blood in them.

e. KAGOSHIMA HORSES :—Produced at Kagoshima, they are quick and mettlesome and even prove intractable, have small heads, large eyes, and short bodies with level tail. They are mostly used as mounts.

Besides the above varieties, horses more or less different in type are also produced at Kumamoto, Miyazaki, Kōchi, Yamagata, Nagano, Ishikawa, Aichi, Gifu, Ibaragi, Tochigi and Hokkaidō, but it may be broadly stated that the build is generally heavier as we go toward the north and lighter in districts situated in the opposite direction.

The importation of a large number of foreign breeding horses by the Court, the Government and people since the Restoration has very much improved the type of our horses, which have gradually began to assume a noble cast of face and to acquire nimbleness, making them well suited for mounts. The foreign horses imported mostly belong to American, Hungarian and Algerian breeds, next to which come Arabian, Anglo-Arabian, and Hackney breeds. There are also Thoroughbreds, Perchelons, and Australians while a few are of Anglo-Norman, Clydesdale and Turkish breed.

The existing number of horses in Japan is shown below :—

Year.	Native breed.	Mixed breed.	Foreign breed.	Total.
29th...	1,551,599	25,801	717	1,578,117
30th...	1,561,125	30,671	1,075	1,592,871
31st	1,555,405	31,488	804	1,587,697
32nd	1,504,243	41,767	749	1,546,759
33rd...	1,484,824	56,048	1,107	1,541,979

In the 33rd year Kagoshima with about 115,000 headed the list followed by Kumamoto with 106,000, and Iwate with 95,000. Fukushima, Hokkaidō, Miyazaki, Aomori, Akita, Miyagi, Nagano, Ibaragi, Tochigi, and Ōita with 50,000 to 87,000 came next.

The number of breeding stallions is as follows :—

Year.	Native breed.	Mixed breed.	Foreign breed.	Total.
31st	4,397	1,317	80	5,794
32nd	4,200	1,610	104	5,914
33rd	3,616	1,769	141	5,526
34th	3,183	2,251	171	5,605

At the end of tho 34th year Fukushima, Iwate, Aomori, and Kagoshima possessed over 500 breeding stallions each, while Hokkaidō, Miyagi, Akita, Kumamoto, Miyazaki, Nagano and Okinawa possessed over 100. Tokyo, Kyoto, Ōsaka, Nara, Miye, Shiga, Yamaguchi, Wakayama, Tokushima and Kagawa occupied the other extreme.

According to the returns available, the births during the last two years were as follows :—

	Native breed.	Mixed breed.	Foreign breed.	Total.
32nd...	93,657	10,128	78	103,863
33rd	91,641	12,834	107	104,582

Fukushima and Kagoshima had over 10,000 births each, followed by Iwate, Aomori, Akita, Kumamoto, Miyazaki and Hokkaidō.

Sheep :—The sheep numbering over 1,200 that were imported from China in the 9th year comprised about 800 of Mongolian breed and about 400 of Shanghai breed (originally produced at the north-eastern districts of China), but they never throve, and generally died of some disease or other. The breeds of sheep sent to America by the Shimōsa Pasture mostly consisted of Costswold, Merino, and Southdowns. At present there are found only 2,500 sheep of foreign breed in Japan, they being Merinos, Southdowns (also Southdowns interbred with other varieties), and Shropshires.

The Goats found in Japan are very rarely of pure blood ; most of them, especially those for milk, have more or less of the blood of the Bear or Thibetan breed. Only in Okinawa do we find breed whose flesh is used for food. This breed originally came from China.

Okinawa possesses the largest number of sheep of all the places in Japan, the number reaching over 50,000. Then follows Kagoshima with 67,000 approximately, followed by Nagasaki with about

3,000. The number is extremely small in other districts. The total is as follows:—

Ewes, 42,126; Ram, 17,788: total 59,914.

Swine:—Two native breeds may be regarded as existing, namely the Yatō breed and Okinawa breed. The foreign breed very rarely remains pure, except a number of Berkshires and Yorkshires imported by the Government a few years ago. The Berkshires, Porland-China, Chester White and others imported from America more than ten years ago have generally degenerated. Such being the case it is not easy to draw any distinct line of demarkation between native and foreign breeds, so that the two terms as applied to swine are at best very arbitrary. Here is a statement as to the number:—

Native breed	149,995
Mixed „	28,079
Foreign „	3,102
Total	181,176

Okinawa contains about 57 per cent. of the whole number, its returns standing at 103,000. Kagoshima with about 37,000 follows it, and then come Chiba and Nagasaki. In many other places the number falls below 1,000.

III. REGISTER.

The only thing worth mentioning about the register of pedigrees of cattle and horses in former time was the fact that in the "Middle Ages" a strict regulation was enforced about making burnt-mark on horses, with the object of providing against the tricks of dishonest dealers. At present no regulation exists about the pedigree of horses or cattle, and the matters are left to the discretion of the people.

IV. SLAUGHTER.

The custom of eating the flesh of animals having been forbidden in former times from religious motives, it was only among the

class of social outcasts called *eta* (corresponding to parish) that the custom of eating flesh existed to some extent. The discontinuation of this custom subsequent to the Restoration brought about a revolution in the butcher business. At the end of the 33rd year 1,396 slaughter-houses existed throughout the country. Subjoined is a statement of the slaughter returns :—

Year.	Cattle.	Horses.	Sheep.	Swine.
24th...	89,306	25,817	—	—
25th...	100,629	26,817	—	—
26th...	104,772	30,990	—	—
27th...	149,677	31,459	1,404	30,404
28th...	160,456	36,026	4,664	41,419
29th...	151,959	44,825	4,058	38,637
30th...	158,504	41,049	6,805	107,034
31st	167,985	41,478	8,388	108,217
32nd	208,877	47,150	7,755	89,219
33rd...	233,385	53,531	8,329	93,904

V. DISEASES OF DOMESTIC BEASTS.

No data being available about the diseases of live-stock in former times, the present paragraph gives only a brief outline of those diseases as they have appeared since the Restoration.

Most of those diseases originally came from the Asiatic continent and therefore first made their appearance in districts regularly connected by trade with one place or other on the continent. At present the diseases present more or less of a local character. For instance farcy and granders generally prevail in the north-eastern parts of Honshū, anthrax in Kyūshū and the districts round about Ōsaka and Tokyo, ranchbrand in Hyogo, Tottori, Okayama, Yamaguchi, etc., rabies in Tokyo, Kanagawa, Yamaguchi and Kyūshū.

The first case of the appearance of rinderpest was in the 5th year, the second twenty years after, while it was in the 33rd year that foot-and-mouth disease first came from Shanghai and wrought serious damage among the milch cows of Tokyo, Kyoto, Kanagawa, Hyogo and Ishikawa. Other kinds of diseases are comparatively insignificant. Here are two tables showing the disease record :—

TABLE NO. 1.

Year.	Rinderpest.			Anthrax.				Slanders and Farcy.		
	Cases.	Deaths.	Slaughter	Cases.	Deaths.	Slaughter	Recovery	Cases.	Deaths.	Slaughter
25th	3,863	796	3,552	1,061	905	1	31	2,164	63	53
26th	5,031	666	4,711	581	498	5	27	1,604	51	61
27th	251	57	243	442	418	7	6	1,458	39	46
28th	1,483	258	1,308	377	322	7	24	1,332	54	26
29th	969	139	1,298	545	504	—	22	1,537	76	51
30th	6,190	508	6,722	573	481	1	42	1,899	47	80
31st...	—	—	—	534	496	—	30	2,227	96	61
32nd	—	—	—	609	545	—	64	1,770	100	91
33rd	191	9	669	856	829	—	18	782	74	47
34th	103	8	314	542	512	1	22	442	18	22

TABLE NO. 2.

Year.	Ranchbrand.				Pseudo-farcy.				Foot & Mouth disease.			Rabies		
	Cases.	Deaths.	Slaughter	Recovery	Cases.	Deaths.	Slaughter	Recovery	Cases.	Deaths.	Recovery	Cases.	Deaths.	Recovery
30th ...	18	17	—	—	—	—	—	—	—	—	—	—	—	—
31st ...	63	52	—	1	—	—	—	—	—	—	—	64	22	33
32nd...	66	63	2	1	237	2	3	61	—	—	—	120	—	—
33rd ...	97	95	—	—	689	11	33	568	2,322	30	1,950	247	146	96
34th...	76	74	1	1	899	19	38	679	627	52	564	189	61	128

Note :—Ranchbrand was separated from anthrax from the 30th year, they having been mixed together formerly; pseudo-farcy was included in glanders and farcy till the 32nd year, while rabies was first included in the 30th year in the list of diseases prevalent among domestic beasts.

VI. VETERINARY SURGEONS AND FARRIERS.

Surgery :—Before the Restoration the so-called veterinary surgeons were horse and cattle dealers who, besides dealing in these beasts, used to periodically apply needle treatment and other simple methods to the beasts. They were of course up to the trick of cheating in transaction of beasts just as practised by horse-dealers of other countries. The engagement early in the Meiji era of a French

military veterinary surgeon by the Army was the first step taken by the Government for the introduction into this country of the science and practices of the Western veterinary surgeon. By the subsequent establishment of schools of agriculture by the Government and also by local offices this branch of medicine has been reduced to a regular system. Till the 18th year, there were about 6,000 men who were allowed to practise the art in virtue of their previous experience, but the grant of licenses to men of this class was discontinued in the 23rd year and from that time onward licenses have been granted only on those who have passed the regular examination or have graduated from the veterinary course at Government or public schools, or at private schools of officially approved standing, either Japanese or foreign. At the end of the 33rd year 2,545 people had regular licenses and 1,713 provisional licenses.

FARRIERY :—The practice of shoeing horses was formerly unknown in Japan ; it was introduced from the West together with the science of veterinary surgery. The regular examination exists, as in the case of veterinary surgeons, for giving licenses to farriers, and this license is granted to those who have passed the examination or have graduated from the course of veterinary surgery or farriery at Government or public schools or at private schools of officially approved standing whether at home or abroad, and also to those who possess the regular license of a veterinary surgeon. At the end of the 33rd year 2,948 men possessed regular licenses and 730 men provisional licenses.

It ought to be added that in places where the number of veterinary surgeons or farriers is insufficient the Minister of Agriculture and Commerce may grant, on recommendation of the local Governors, the provisional license valid for a limited number of years to those who are judged to possess sufficient experience either as veterinary surgeons or as farriers.

VII. USE OF LIVE-STOCK.

CATTLE is still principally reared for purposes of tillage and for getting manure, and it was only recently that the rearing of

them for their milk and their meat was commenced. The number of sheep reared being still small, wool for weaving is imported in a large quantity from foreign countries, while sheep as mutton principally come from Shanghai, the yearly importation being about 1,000. Swine is also insufficient in number to supply bristles for manufacturing purposes, and they are imported from abroad.

VIII. DAIRY-FARMING AND MEAT-PRESERVING.

The industry is still in a comparatively primitive condition and can hardly supply the growing demand at home. At the end of the 33rd year there were 23,931 milch cows in Japan, but the milk they produce is almost entirely used while fresh. The bulk of the preserved meat consumed in the country may be said to be imported. Subjoined are two tables giving a statement of the volume of output of dairy products and preserved meat at the end of the 34th year.

DAIRY PRODUCTS.

	Butter.		Cheese.		Condensed Milk.	
	Output.	Value.	Output.	Value.	Output.	Value.
	kin.	*yen.*	*kin.*	*yen.*	*kin.*	*yen.*
Hokkaidō	3,562	2,449	—	—	—	—
Tokyo	15	16	—	—	70,649	54,017
Kyoto	200	90	—	—	3,690	830
Ōsaka	—	—	—	—	146,437	28,160
Kanagawa	1,357	1,168	1,500	750	4,229	958
Niigata	3,607	454	—	—	—	—
Gumma	3,439	4,573	—	—	—	—
Chiba	200	160	—	—	185,021	29,360
Tochigi	535	535	—	—	—	—
Iwate	1,080	1,026	—	—	—	—
Shimane...	—	—	—	—	171	39
Yamaguchi	—	—	—	—	13,782	2,342
Kumamoto	—	—	—	—	125	52
Hyogo	320	320	—	—	—	—
Total	14,315	10,793	1,500	750	424,104	115,761

MEAT-PRESERVING.

	Ham.		Bacon.		Salt meat.		Tinned meat.	
	Output.	Value.	Output.	Value.	Output.	Value.	Output.	Value.
Hokkaidō ...	62	18	4	1	30	6	—	—
Tokyo	—	—	—	—	—	—	61,000	11,800
Kyoto	—	—	—	—	22,961	5,281	—	—
Ōsaka	—	—	—	—	—	—	42,000	7,560
Kanagawa ...	7,458	1,192	2,500	320	—	—	—	—
Hyogo	1,500	660	50	15	—	—	10,486	2,306
Nagasaki ...	70,300	3,101	81,000	19,400	5,500	1,240	1,325	495
Niigata... ...	—	—	—	—	—	—	4,000	400
Miye	—	—	—	—	—	—	112	175
Chiba	—	—	—	—	12,500	2,000	—	—
Aichi	—	—	—	—	—	—	1,484	489
Shizuoka ...	—	—	—	—	—	—	1,937	340
Gifu	—	—	—	—	—	—	3,820	1,194
Yamagata ...	—	—	—	—	—	—	1,112	444
Akita	—	—	—	—	—	—	4,800	768
Shimane ...	—	—	—	—	—	—	7,853	2,989
Okayama ...	—	—	—	—	—	—	147,970	27,434
Hiroshima ...	—	—	—	—	—	—	1,218,453	216,131
Yamaguchi ...	—	—	1,325	636	375	75	12,881	2,146
Ehime	—	—	—	—	—	—	65,000	12,155
Ōita	—	—	—	—	—	—	14,625	18,281
Kumamoto ...	—	—	—	—	—	—	22,331	2,836
Kagoshima ...	—	—	—	—	24,000	2,512	1,875	480
Total ...	79,320	22,972	84,879	20,412	65,366	11,115	1,623,064	328,323

CHAPTER VII.—Poultry.

History and Existing Condition—Breeds and Number—Eggs.

I. HISTORY AND EXISTING CONDITION.

Poultry principally consists of hens and cocks, with ducks, geese, and turkies coming next, but at a great distance. The only fact known about poultry in former times was that besides being used for the flesh, cocks were reared for cock-fighting.

Coming to recent times we may mention the engagement of a Chinese expert about the 9th year by the Bureau of Agriculture in order to teach a number of persons concerned the artificial incubation of fowls and ducks. Pamphlets were distributed all over the country by the authorities with regard to this method of incubation and also with regard to keeping fowls generally. Meanwhile the public began to take a great interest in the business, and at one time the importation of foreign breeds became highly fashionable. However as the business was conducted in a somewhat speculative manner it soon suffered a collapse. At present the business is not so popular as it was once, but at least it rests on a sounder basis. The reproductive powers of fowls too are considerably better than they were before, and a considerable improvement in the breeds has been effected. An increasing demand on eggs has recently arisen and the import of a large quantity of cheaper Chinese eggs is seriously affecting the prosperity of the Japanese poultry business. As a subsidiary enterprise of the farmers the business does not yet occupy a position of any great importance.

II. BREEDS AND NUMBER.

Before the importation of foreign breeds commenced, the original farm-fowls consisted of four or five varieties among

which may be mentioned a dwarfish kind called Chabo, a long-tailed fowl, a fighting cock also reared for its flesh. There were also two kinds of foreign breeds that had been imported during the Tokugawa epoch. Subsequently specimens of almost all the noted foreign breeds have been brought in but their descendants arenow rarely of pure breed.

There are only two breeds of ducks, one being the "white necked" and the other "green-necked." Goose and turkey are not yet reared to any large quantity, they being mostly intended for use of foreign residents. At the end of the 34th year the poultry returns stood thus :—

	Number.	Value.
Barn-fowls	10,847,853	3,438,561
Ducks	257,796	128,438
Turkeys	2,021	3,189
Geese	9,169	7,109

Eggs :—The eggs produced at home are far from supplying home demand, in consequence of which the quantity of Chinese eggs coming in is steadily on the increase. Subjoined are figures showing the quantity produced at home of the import from China.

OUT-PUT AT HOME.

	Number.	Value.
Barn-fowls	533,406,628	6,631,481
Ducks	7,823,734	131,496
Turkeys	65,996	4,056
Geese	327,716	8,495

IMPORT FROM CHINA.

Year.	Number.	Value.
31st	46,522,000	490,462
32nd	67,280,000	823,088
33rd	95,830,000	1,238,661
34th	99,294,000	1,293,565

CHAPTER VIII.—Bee-Keeping.

The earlist record about bee-keeping in our history is one regarding the present of honey bees by a Korean Prince to the Empress Kotoku (642–'45 A.D.). At present the honey is produced at Iyo, Tosa, Chikuzen, Higo, Tamba, Tsushima, Shimane, Kai, Chikogo, etc. The output cannot be accurately known, but it is roughly estimated at about 200,000 *kin.*

Breeds :—Generally speaking there are three varieties of honey bees now in Japan, they being the Japanese breed that originally came from Korea, the Italian variety, and the Cyprian variety. The first is hardy but is far inferior to the foreign breeds in the amount of the honey secreted. The Italian breed, though an excellent collector of honey, cannot stand the cold so well as the Japanese bee, so that it can be kept in the southern districts only. The last variety is best adapted for Japan, both in the large quantity of honey it secretes and on account of its hardy characters.

As yet the business of bee-keeping remains in a primitive condition, and both in the keeping and the refining of honey very little care is exercised by our farmers. A little more care employed would be sure to make this business very profitable.

CHAPTER IX.—Farmers' Subsidiary Work.

The question of how best to utilize what we may call hours of enforced idleness is one of special importance for the farmers in such a country as Japan where farming is carried on an extremely limited scale and with such attention to minutiæ as to leave very little room for further expansion, and where farming work is generally suspended on account of climatic condition during winter. The kinds of subsidiary occupations pursued by our farmers are therefore many. They may be given as follows :—

1. The manufacture of starch, *konnyaku, sōmen* (kind of maccaroni), frozen buckwheat maccaroni, frozen *mochi,* frozen *tōfu,* frozen *konnyaku,* jam, dried persimmon fruits, dried peels of gourd, dried radish peel, etc.
2. The manufacture of mat-facing, straw-braids, mats used for rearing silkworms, matches, cords, nets, willow-baskets, rush head-gear, straw raincoats, head-gear made of hasks of bamboo-sprouts, coir-ropes, straw-ropes, charcoal-bags, straw-hats, etc.
3. Weaving of fabrics, spinning of yarns, manufacture of silk, paper and various kinds of basket-work.
4. Extraction of oil, pisciculture, salt-making, charcoal-burning, lime-making, camphor-refining, etc.

In some cases farmers divide their time and labor almost equally between those "odd jobs" and their regular farming work, being therefore partly farmers and partly manufacturers of goods.

CHAPTER X.—Agricultural Products in Commerce.

EXPORTS AND IMPORTS.

As is quite natural, the throwing open of the country to foreign commerce has had different effects on the prosperity of different agricultural products, for while some, such as silk, tea, etc. have been raised to a state of extraordinary developement by the foreign demand for them, others such as cotton, indigo, etc. have suffered seriously from the competition of foreign products.

I. EXPORTS.

The chief items of agricultural products for export and the amount thereof are given below:—

		30th.	31st.	32nd.	33rd.	34th.
Rice	picul.	1,294,196	1,050,118	2,178,837	633,908	1,301,542
	yen	6,141,218	5,920,185	10,282,012	3,576,569	6,908,913
Raw silk	*kin*	6,919,861	4,837,329	5,946,911	4,630,903	8,697,706
	yen	55,630,460	42,047,411	62,627,721	44,657,029	74,667,331
Noshi & waste silk	,,	4,349,962	4,091,769	4,388,217	3,900,161	4,789,287
	,,	3,019,973	2,655,931	4,074,086	4,161,318	4,468,769
Green tea	,,	26,674,979	25,845,092	27,998,589	2,261,895	26,651,839
	,,	7,441,952	7,862,492	7,699,625	7,998,589	7,819,498
Other tea	,,	5,957,704	4,981,540	6,733,055	5,978,252	6,596,632
	,,	418,508	353,173	799,158	931,182	1,034,829
Matting	*yen*	3,232,738	3,938,450	3,717,489	3,310,042	5,431,514
Lily bulbs	No.	5,015,745	5,100,548	6,083,462	7,048,678	8,979,741
	yen	149,906	128,820	258,564	257,919	266,178
Pea nuts	,,	1,661,253	3,012,967	3,298,185	5,305,195	8,817,442
	,,	64,114	115,041	144,988	240,517	404,937
Ginseng	*kin*	368,730	356,069	402,221	402,914	419,328
	yen	484,227	423,837	476,868	407,671	452,924
Mint	,,	57,604	45,401	76,210	51,321	120,681
	,,	180,710	158,245	268,547	228,472	545,288
Straw braids ...	No.	6,760,384	5,961,125	7,134,655	8,802,039	6,974,457
	yen	3,181,915	2,404,003	2,770,178	4,025,159	2,986,836
Wood wax	*kin*	4,205,843	3,798,791	4,569,613	3,702,087	4,049,317
	yen	730,576	609,760	642,219	561,435	610,371
Cotton	,,	835,152	824,819	743,050	1,009,228	950,593
	,,	234,380	218,296	209,894	323,920	308,908

The export of minor items worth mentioning in the 31th year was as follows :—

	kin.	*yen.*
Pepper	953,026	126,085
Oranges	3,689,355	129,214
Sweet potatoes	9,408,026	203,356
Vegetables and fruits	—	284,339
Plant and bulbs	—	105,801
Seeds	—	75,687
Hechima	3,209,168	112,924
Ginger	1,162,359	130,972
Feather	385,656	92,303

RICE :—The quantity of rice going abroad being naturally determined by the condition of the crop at home and the condition of the foreign markets, it varies considerably according to the year. The places of destination, though not firmly fixed, are generally Hongkong, Germany, Australia, England, the United States, etc. The rice grown in Kyūshū and the districts bordering the Inland Sea is most acceptible to foreign consumers.

RAW SILK :—Raw and waste silk constitute about 30 per cent. of the bulk of the export trade. The United States is the best customer of our silk, taking about 60 per cent. of the entire export, followed by France, Italy, etc. This important export product chiefly come from the central part of Honshū.

TEA :—Tea comes next to raw silk as the most important agricultural product for export trade, though its prosperity has somewhat declined lately owing to the encroachment of Indian and Ceylon teas in the market of the United States, which together with Canada is the best customer for this goods. Green tea is in demand in the above two places while brick tea goes to Russia.

MATTING :—Though it is an industry of comparatively recent origin, matting now occupy an important place in our list of exports. The United States is here again our best customer. Okayama and Hiroshima are the principal centres of produce.

LILY-BULBS :—These bulbs mostly go to the United States and England where they are used for producing the flower.

PEA-NUTS :—The export has increased lately, the principal markets being Hongkong, Australia, United States, etc. The fruit is either used for food or for the extraction of oil.

GINSENG :—The export is practically confined to China, and therefore its market is limited.

MINT :—The export of mint shows more or less of an increase, though that increase is necessarily confined within narrow limit. It goes to Hongkong, Germany and the United States.

STRAW-BRAIDS :—This product constitutes one of the most important items of our export trade, having recently developed a marked activity, with the tendency of greater improvement of quality in future. The goods are principally exported to England; the United States, Hongkong, Australia, etc., being our next best customers.

WOOD-WAX :—The market shows every sign of shortly becoming enlarged, the principal consumers at present being Hongkong, Germany, the United States, etc.

RAW-COTTON :—Korea and Siberia are the principal customers of the cotton.

II. IMPORTS.

Subjoined is the list of the principal items of agricultural products coming into Japan.

Rice	picul	6,301,394	11,696,252	1,650,592	2,286,979	311,938
	yen	21,528,429	48,219,810	5,960,166	9,021,536	2,878,958
Flour	*kin*	23,415,021	38,854,445	29,001,104	84,299,342	62,972,707
	yen	1,156,569	2,022,413	1,370,857	3,882,517	2,873,302
Sugar	picul	3,207,950	4,369,046	2,731,817	4,045,785	4,928,075
	yen	19,822,775	28,439,295	17,516,039	36,606,528	33,493,367
Beans	picul	2,349,376	2,406,507	308,786	1,707,742	1,938,474
	yen	5,889,616	7,101,103	8,822,111	4,817,767	5,328,136
Malt	*kin*	2,324,321	3,042,476	4,264,683	5,642,531	6,586,442
	yen	221,535	293,510	468,619	619,220	765,634
Raw cotton	picul	2,298,643	2,453,586	3,472,296	2,608 084	1,579,162
	yen	43,620,215	45,744,371	62,210,717	59,471,629	60,650,362
Cocoons	*kin*	713,929	458,617	807,762	598,999	441,371
	yen	334,416	212,124	642,223	618,612	342,593
Wild silk cocoons.	„	6,600	15,760	151,850	148,237	213,081
	„	11,370	37,872	375,189	351,359	433,184
Hemp	„	8,490,567	7,232,849	12,610,796	14,514,147	12,965,189
	„	654,791	590,517	1,245,049	1,700,409	1,370,183
Oil-cake	picul	1,704,471	2,101,410	2,795,504	2,280 687	3,477,704
	yen	3,315,587	4,614,967	9,791,813	5,696,453	8,109,237
Eggs	*yen*	337,769	492,553	826,960	1,243,065	1,298,611
Indigo	*kin*	1,196,134	1,806,276	1,768,728	1,851,673	1,243,790
	yen	1,538,022	2,270,815	2,903,829	3,902,559	2,665,043

Wool	,,	2,712,695	2,838,801	7,746,509	4,514.298	4,952,196
	,,	1,062,398	1,642,819	4,324,427	3,919,693	3,129,382
Condensed milk ...	dozen	93,784	174,308	173,467	300,227	279,538
	yen	201,204	359,851	389,071	663,681	646,308
Hides and leathers	*kin*	1,974,510	2,922,836	3,104,458	2,696,663	3,344,062
	yen	346,394	587,949	719,930	656,643	786,609

Minor items worth mentioning in the 34th year were as follows :—

	kin.	*yen.*
Butter	181,278	119.339
Cheese	70,593	29,206
Coffee	142,175	45,292
Tea	117,518	29,053
Cotton seeds	42,323,844	571,720
Sesame seeds	5,699,927	284,784
Grains and seeds	—	460,742
Leaf tobacco	76,361	30,272
Tallow	857,458	108,696
Hairs, bristles, etc.	191,916	260,024
Wheat	8,587,462	272,868

Rice :—Rice comes in from Korea, Tonquin, British India and Siam, especially when the rice crop fails in our country. The imported rice is generally inferior in quality and is patronized almost exclusively by the poorer classes.

Flour :—The import of flour has gone up to large figures recently, owing to the fact that the native product is not well suited for making cakes and other articles of food made of flour. The goods come principally from the United States, Canada, and Australia.

Sugar :—The import of sugar is also advancing in rapid strides, the consumption of this important article of diet having remarkably increased of late. Brown sugar comes chiefly from the Philippines, Java, Hongkong and China, while Hongkong is the largest importer of the refined variety, followed by Germany and Hungary.

Beans :—As raw material for making soy, *tōfu*, *miso*, also as manure the import of the goods amounts to a large quantity. However the figures are gradually falling off owing to the expansion recently of bean cultivation in Hokkaidō.

Malt :—The great development recently of the business of brewing beer and the insufficient supply of malt of the required excellence has led to the introduction of a large quantity of foreign

malt. However, as the quality of the home-made article is gradually improving, the import may not attain any particular increase in future. Germany, Hungary, and the United States, particularly the first country, supply the bulk of this malt.

RAW COTTON :—A recent extraordinary development of the spinning business and the unsuitedness of native cotton for the purpose, has resulted in a large purchase of this raw material from foreign countries, especially from Bombay, the United States, China, and Egypt.

COCOONS AND WILD SILK :—Both come from China, they being used by our weavers. The latter is regarded with special favour by them, owing to its low price. The import of the former has lately gone down to some extent.

HEMPEN GOODS :—These are coming in a gradually increasing quantities from China, the Philippines and India.

OIL-CAKES :—Of all the cakes imported into this country, bean-cakes form the bulk. The import shows an extraordinary advance, the demand of our farmers for the cakes as fertilizer having become enormous, the bean-cakes are shipped from Newchwang and the rape-seed cake, which also comes in a greater or less extent, rom Shanghai.

FRESH EGGS :—Owing to the growing consumption of eggs at home and also to the cheapness of this article of food, the import of eggs from China is very large. The recent imposition of a heavier tariff on the goods and the steady progress made by the poultry business at home may check any further expansion of the import.

WOOL :—Wool comes from China, Australia, Germany, England, etc., the home supply of this raw material being out of proportion to the demand.

CONDENSED MILK :—This comes from England and the United States. No large increase of the import in future is probable, in view of the fact that the dairy industry is developing steadily at home.

HIDES AND LEATHERS :— These come, especially the former, from Korea most, and then from China, India, etc.

COTTON AND SESAME SEEDS :—These are imported for the expressing of oil from them but their import is falling off. The former

is chiefly intended to produce fertilizer from and the latter is used for obtaining cooking oil. Both come from China.

In short, of the principal items of agricultural products exported from Japan, raw silk, tea, mats, straw braids, and rice figure most in the list, while on the other hand rice, flour, raw cotton, sugar, indigo, oil-cakes, etc. are the principal items on the import list of agricultural products.

CHAPTER XI.—Agricultural Legislation.

Provisions Relating to Protection and Encouraging—Provision Relating to Calamity.

I. PROVISIONS RELATING TO PROTECTION AND ENCOURAGEMENT.

Agricultural Societies :—For the protection of the interests of farmers and encouragement of the industry, the creation of organized associations of this kind was regarded as necessary, especially in view of the comparatively primitive state of our farming and of the urgent necessity that existed of initiating our farmers into the Western science and practice of farming. It was in pursuance of this consideration that farmers established agricultural associations in many parts of the country. However it was soon evident that they could not be sufficiently efficasious for the purpose so long as they were left as they were, and that in order to render their service really satisfactory the Government must extend to them help. Consequently coming to June 32nd year, the Law of Agricultural Societies was promulgated with the consent of the Diet, and the Rules of Operation of the same in the following year, the legislature providing among other things a grant of not more than 150,000 *yen* every year to the societies established in conformity with the law. The creation of a society was of course left to the discretion of the farmers themselves, the only interference exercised by the local authorities being the forcing of all those who had not already joined a society established in their own districts to join it. Here is a list of the existing agricultural societies.

Name of Agricultural Society.	Date of Organization.	Expense in the 35th fiscal year.	State aid in the same year.
		yen.	*yen.*
*Tokyo-fu	Oct. 5, 33rd ...	9,760.740	2,299
*Kyoto-fu	May 16, 33rd ...	15,377.090	4,000
*Ōsaka-fu	June 28, 33rd ...	11,853 460	3,204
*Kanagawa-ken	Sept. 17, 33rd ...	8,045.000	2 408
Hyogo-ken	June 10, 34th ...	9,526.200	4,000
Nagasaki-ken	Sept. 18, 33rd ...	9,083.465	2,294
*Niigata-ken	July 30, 33rd ...	12,440.336	4,000
*Saitama-ken	Sept. 28, 33rd ...	10,105 400	3,136
*Gunma-ken	May 16, 33rd ...	8,435.000	2,796
*Chiba-ken	June 11, 33rd ...	14,648.635	4,000
*Ibaragi-ken	July 27, 33rd ...	14,666.150	2,761
*Tochigi-ken	June 18, 33rd ...	8,745.000	2,623
*Nara-ken	July 23, 33rd ...	9,596.000	2,870
*Miye-ken	Sept. 26, 33rd ...	12,600.000	2,774
*Aichi-ken	Sept. 5, 33rd ...	12,850.000	4,000
*Shizuoka-ken	July 28, 33rd ...	15,278.000	4,000
*Yamanashi-ken	Aug. 29, 33rd ...	9,424.430	2,295
Shiga-ken	Aug. 31, 33rd ...	19,652.820	4,000
*Gifu-ken	Aug. 28, 33rd ...	9,279.330	4,000
*Nagano-ken	Sept. 5, 33rd ...	10,652.100	4,000
*Miyagi-ken	Oct. 10, 33rd ...	20 899.444	4,000
*Tokushima-ken	Sept. 26, 33rd ...	7,370.000	3,666
*Iwate-ken	Aug. 28, 33rd ...	10,564.050	3,389
*Aomori-ken	Oct. 9, 33rd ...	10,700.000	2,708
*Yamagata-ken	July 20, 33rd ...	9 040.000	3,820
*Akita-ken	Oct. 10, 33rd ...	8,918.285	2,838
*Fukui-ken	Sept. 16, 33rd ...	11,519.384	2,458
*Ishikawa-ken	July 11, 33rd ...	12 873.800	2,882
Toyama-ken	June 11, 33rd ...	18,600.000	2,596
*Tottori-ken	June 10, 33rd ...	5 401 068	1,767
*Shimane-ken	Oct. 13, 33rd ...	14,914.796	4,000
*Okayama-ken	Aug. 3, 33rd ...	10,198 560	4,000
*Hiroshima-ken	July 11, 33rd ...	11,931.669	3,818
Wakayama-ken	Feb. 18, 34th ...	7,480.000	2,090
Tokushima-ken	Aug. 9, 34th ...	8,400.000	2,168
Kagawa-ken	Oct. 8, 34th ...	7,590.590	1,984
*Ehime-ken	June 14, 33rd ...	10,850.850	3,216
*Kōchi-ken	Aug. 28, 33rd ...	12,425.000	2,821
*Fukuoka-ken	Aug. 28, 33rd ...	14,217.503	4,000
*Ōita-ken	Sept. 6, 33rd ...	12,516.000	3,547

*Saga-ken	Aug. 29, 33rd	...	11 357·550	2,738
*Kumamoto-ken... ...	Sept. 12, 33rd	...	7,565.280	3,141
*Miyaz ki-ken	June 11, 33rd	...	12,186.567	3 082
*Kagoshima-ken ...	June 10, 33rd	...	9,426.940	3,770
Hokkaidō...	Dec. 7, 33rd	...	12,716.187	4,000
Total			511,476.678	143,959

Note :—Those that are marked with a star (*) denote the societies that existed prior to the enforcement of the Law in question. The grant-in-aid is also made to agricultural societies existing in cities or rural districts, and in the 35th year 1,000 *yen* in all was granted to societies existing on remote islands corresponding from an administrative point of view to rural districts.

Besides the prefectural societies there were 561 sub-societies in rural districts or cities, and over 10,000 in towns and villages.

Industrial Guilds :—The extension of a similar protection to small farmers and small manufacturers was also considered a matter of necessity, in consideration of an important part played by them in national economy. After repeated failures to devise some legislative measure having for its object the giving of such protection, the Law relating to Credit Guilds was at last promulgated in March of the 33rd year with the consent of the Diet.

As only a short time has intervened since the enforcement of that Law, no specific statement may be given here, except that the provision is likely to prove extremely useful. The number of guilds established under the Law was as follows according to the returns on Oct. 15, 35th year:—

Kind.	Limited liability.	Guarantee liability.	unlimited liability.	Total.
Credit	87	6	218	311
Sales	31	3	4	38
Purchase	30	3	38	71
Produce	5	—	5	10
Combining more than two systems ...	24	1	26	51
Total	177	13	291	481

Note :—In the table the small number of guilds organized by people who are not themselves engaged in farming are included.

Even prior to the enforcement of the Law a large number of similar guilds existed, these numbering in the 31st year 346

with 64,388 members and possessing property valued at 968,-141 *yen*. Of these the silk sales guilds were most important, as some of them undertook the sale of silk to the value of about 3 million *yen* a year. Some of them, too, were established as far back as 230 years ago. Then there are several hundred guilds, organized on the rules laid down by the celebrated economist and moralist Ninomiya.

The industrial guilds being considered as corporations of public utility are exempted from the payment of the Income and the Business Taxes, while those established on the limited liability system are entitled to get a loan from the Local Hypothec Banks without security.

As the state of things in Hokkaidō is different, it being a newly opened district, special legislation of this kind was enacted for it in the 33rd year.

Staple products Guilds :—The existence of guilds organized by business people engaged in the same or in kindred pursuits was recognized several centuries ago, as for instance, in the case of the stock-brokers in Yedo (now Tokyo) and Ōsaka In consequence of the tendency of these guilds, to become monopolies, they were once suppressed but this ban was removed after the Restoration. During the space of about thirty years from the 4th to the 33rd year when existing Law for Staple Products Guilds was enacted, the history of the organization of guilds by various business interests is exceedingly complicated, owing to the fact that while such organizations were admitted to be necessary for the respective interests which they served imperfect supervision of them by the local authorities soon destroyed their utility so far as their original aim of preventing the production of inferior goods and also of protecting the interests of which they owed their establishment were concerned. The promulgation in April of the 30th year of the Law relating to Staple Export Commodities Guilds marked a new and important departure in the efficiency of legislation of this sort. Indeed this enactment was regarded as imperatively necessary owing to the production and export of an inferior class of goods, and to the consequent injury done to the prosperity of the various branches of trade. Three years after, the

scope of this law was expanded, till it took the shape of the existing legislation. A history of the guilds established by the silk interests is similar, for as they constitute one of the most, if not the most, important interests in the national economy, the people engaged in the business were impelled to combine for their common interest and prosperity. At last with the promulgation of the existing law, the special provisions previously established to regulate the silk guilds were abolished, so that these interests now exist under exactly same law as the others.

The agricultural guilds now existing are follows:—

Kind of Guilds.	
Rice	3
Ginseng	1
Tobacco	1
Oranges	1
Ginger and Skeleton of Gourds	2
Grapes...	1
Raw silk	77
Silk-worm Eggs...	23
Sericulture	2
Doupions	1
Total	112

Note:—The figures for silk guilds comprised 4 unions dealing with the same business.

RE-ARRANGEMENT OF FARM BOUNDARIES:—As the work in connection with the re-arrangement of farm boundary has already been described, it is sufficient to state here that the law for regulating this work was promulgated in March of the 32nd year.

STATE-AID TO LOCAL EXPERIMENTAL FARMS:—The result of maintaining the local experimental farms on local disbursements alone was not quite satisfactory so far as their efficiency was concerned, and the Government has now made a special provision for granting pecuniary aid to those farms, this provision covering also local agricultural training schools and local experimental fishery laboratories and training schools. This grant-in-aid stood as follows at the end of the 35th fiscal year:—

	No.	Total amount of aid.
Local Experimental Farms	35	67,000
„ Farming Training Schools	4	3,200
„ Experimental Fishery Laboratories ...	21	40,100
„ Fishery Training Schools	4	5,200
Total	64	115,700

Silk Conditioning :—The Silk Conditioning Houses having been described in the preceding part, it is enough to state here that the rules in connection with this official business were enacted in June, 28th year (1895).

Rules relating to Tea Guilds :—The Rules relating to Tea Guilds deserve special notice, as they have proved very efficient in preventing the appearance of the inferior tea that too frequently impaired the credit of this staple in foreign markets, and in helping it to hold its ground against the competition of Chinese and Ceylon teas.

The enactment was made in the 17th year at the instance of the conference of ten dealers and manufacturers held in Kobe in the preceding year. The Rules do not apply to such prefectures as Gumma, Yamanashi, Nagano, Fukushima, Miyagi, Iwate, Aomori, Akita, Yamagata, Kagawa, Okinawa and Tochigi where the tea industry is of insignificant proportions.

Rules relating to Cattle and Horse Guilds :—Very strict rules were enforced during the Tokugawa Regency in districts famous for the production of cattle and horses. In feudal daimiates the rules for the breeding of horses for military use were especially strict. This salutary custom fell, however, into desuetude with the abolition of the Regency and the re-establishment of the Imperial régime. In the 15th year or thereabouts the establishment of cattle or horse guilds by the people was encouraged, but the regulations were far from being as efficient as they were formerly. Finally, in February of the 33rd year the existing Law relating to Cattle and Horse Guilds was promulgated with the consent of the Imperial Diet, and this Law in conjunction with the work in the state pastures and studs aheady described is now conducing in a remarkable manner to the interest of the industry. The number of guilds existing at present is as follows :—

Cattle Guilds	25
Horse Guilds	137
Cattle and Horse Guilds	50
Total...	212

Rules relating to the control of Breeding Bulls and Stallions :—In accordance with the Notification issued in the 18th year, rules for controlling breeding bulls and stallions were left to be drawn up by different local offices. Thanks to the beneficient result of this control the breed of our live stock is gradually improving, half breeds and foreign breeds superseding the inferior native breeds. The number of old cattle are diminishing while the stature of cattle and horses is improving. The following data will serve to make this point clear :—

(1) NUMBER OF BREEDING BULLS.

Year.	Home Breed.	Foreign Breed.	Half Breed.	Total.
30th	1,579	477	342	2,398
31st	1,666	502	421	2,589
32nd	1,684	575	533	2,792
33rd	1,980	514	692	2,886
34th	1,805	489	811	3,105

(2) STATURE OF BREEDING BULLS.

(The standard measure, 4.4 *shaku*).

Year.	Home Breed.		Foreign Breed.		Half Breed.		Total.	
	Above.	Below.	Above.	Below.	Above.	Below.	Above.	Below.
30th...	110	1,469	240	237	99	243	449	1,949
31st	128	2,538	306	195	134	287	568	2,021
32nd...	167	1,517	326	249	187	346	680	2,121
33rd...	197	1,483	298	216	272	420	740	2,119
34th...	266	1,539	329	160	427	384	1,022	2,083

Rules Relating to Breeding Stallions :—Over and above the Notification mentioned in the preceeding section the control of breeding stallions is further regulated by a special law issued in the 30th year (1897). These legislative provisions require all the breeding stallions to be inspected by competent experts and the inspection has resulted in a marked improvement of the breed, as may be seen from the following data.

(1) NUMBER OF BREEDING STALLIONS.

Year.	Home Breed.	Half Breed.	Foreign Breed.	Total.
30th	5,505	1,145	94	6,744
31st	4,397	1,317	80	5,794
32nd	4,200	1,610	104	5,914
33rd	3,616	1,769	141	5,526
34th	3,185	2,251	171	5,607

(2) STATURE OF BREEDING STALLIONS.

Year.	Below 4.6 *shaku*.	Above 4.6 *shaku*	Above 4.7 *shaku*.	Total.
30th...	1,505	1,788	3,271	6,744
31st...	1,149	1,447	3,198	5,794
32nd	1,051	1,572	3,291	5,914
33rd	741	1,137	3,648	5,526
34th...	626	1,014	3,967	5,607

RULES RELATING TO THE CASTRATION OF HORSES:—The earliest authentic record about the custom of castrating horses occurs in the Kyōhō era (1715—'37A.D.) when a large number of Persian horses were presented by some Hollanders to the then Shogun Yoshimune. The Dutchman who brought these horses was the first to introduce into our country the practice of castration as well as the foreign method of breeding horses. Coming to the present era of Meiji, we find that both the Department of Agriculture and Commerce and the War Office began to perceive the necessity of this practice, and that while in the 13th and 15th year the former issued instructions for the encouragement of it, the latter started as early as the 8th year a regular course of instruction to veterinary students. Coming to the 16th year the practice was universally applied to war horses. But the public were very slow in availing themselves of those instructions or in following the example set by the Government. The experience gained in the China war by Japan made it more imperative for Japan, however, to adopt this means for the elimination of inferior stallions, and the promulgation of the existing Law in the 24th year was the result. It is provided in this Law that with the exception of approved stallions all other stallions must be castrated at the age of three years, all the expences incidental to the operation to be paid out of the Treasury. The Rules of Operation were issued in the 34th year (1902), officials were appointed in the Agricultural Bureau to take charge of the

business, and finally 94 students were collected in order that they might be initiated into the art at the Military Horse Section.

Game Law and Investigations in connection with Wild Birds:—No regular rules existed formerly for the protection of useful birds and the destruction of injurious insects, except in the single case of the crane which therefore abounded in this country before the Restoration. It was in the 6th year that regular rules about shooting and hunting were promulgated. These rules underwent repeated amendments till they finally took shape in the present Game Law that was promulgated in the 34th year.

The fluctuation in the number of licenses granted during the recent seven years is shown in the following table:—

Year.	License class A.	License class B.
28th	16,376	125,189
29th	16,991	141,556
30th	16,609	174,334
31st	17,198	178,130
32nd	16,966	199,808
33rd	16,918	202,862
34th	11,102	102,265

Note:—Licenses of class A. are issued to those who use fire-arms while licenses of class B. are issued to those who adopt other methods of killing or capturing games.

The provisions regarding game preserves were first enacted in the present Law. These preserves number 58 in all, and have a tendency to increase. The total number of common game preserves is 20, of which 13 existed under the old rules and the rest according to the new.

The new Law has proved effective in checking the reckless destruction of birds due to the enormous number of sportsmen in the country, as is shown by the foregoing table which records the sudden fall of the number of shooters by about 50 per cent. during the last two years. However no conclusive result can be arrived at on this point until after the lapse of several years more.

Several other new provisions were enacted by the new Law, such as the absolute prohibition both of shooting and hunting in the breed-

ing season, the establishment of game preserves and other such restrictive measures. In future, therefore, the breeding of birds will be more satisfactory than it was during recent years.

Wild birds have, it need hardly be said, an important relation to farming and also to forest planting, not to speak of the fact that their featuers and flesh are useful for various purposes. In view of this, investigations into the varieties of birds found in Japan were started in the 27th year, these investigations covering the following points :—

1. Kind of food.
2. Geographical distribution.
3. Season of pairing, of laying, etc.
4. Power of multiplication.
5. Natural enemies and friends.
6. Season and extent of migration.
7. Mode of destroying injurious birds.
8. Mode of multiplying useful birds.
9. Relative merit and demerit of the various methods of shooting and hunting.

II. PROVISIONS RELATING TO CALAMITY.

Control of Manure :—It is a natural consequence that with the progress of farming there should arise a demand for manures which are more efficacious than those naturally procurable. But farmers do not generally possess sufficient knowledge to distinguish genuine fertilizers from those that are spurious. In procuring artificial fertilizers they are therefore liable to be duped by dishonest manufacturers and dealers. Convinced this fact the Local Office of Nara enforced in its jurisdiction rules requiring the dealers to organize themselves into a guild. The result obtained in Nara-ken was satisfactory so that the Government, at the instance of the Diet, enacted in December of the 34th year a law for controlling fertilizers.

This law compels all those who manufacture or deal in fertilizers to first get a license, to submit samples of their wares to the proper

officials for inspection, and also to guarantee the alleged composition of their fertilizers. At the same time the Government has distributed, for the better enforcement of the regulations, 116 fertilizer inspectors among different districts and has also appointed 20 chemists in the State Experimental Farms to take charge of the analysis of fertilizers. The former necessitated the disbursement by the Government of 109,729 *yen* and the latter of 38,497 *yen*.

Destruction and prevention of injurious insects:—The appearance of injurious insects has often proved disastrous to our farmers. One such case was the devastation wrought by locast in Tokachi, Hokkaidō, from the 13th to the 15th years.

The prevention of damages done to the crops by injurious insects requiring first of all the united efforts of all the farmers living in any given vicinity, the Government first issued a Notification on this point in the 18th year which was made perfect in its working in the 29th. The appearance of the rice-plant hopper in the very next year throughout the country and the decrease, in consequence, of the year's harvest of rice by 13.8 per cent of the normal yield, with an extraordinary advance of the market price of rice, at once caused the Government and people to devote their best attention to the devising of preventive measures. Their efforts were crowned with success for no such calamity has since visited the country.

Subsequently the infliction of injuries on the crops by parasitic fungi caused the Government to further amend the regulations and to make them cover, besides injuries from insects, injuries from such lower organisms.

Inspection of silk-worm Eggs:—The regulations of the inspection of silk-worm eggs were first issued in the 19th year. They left the inspection to be done at the discretion of each locality. This arrangement proved comparatively unsatisfactory and an amendment was subsequently effected as to make the regulations uniform for all the provinces and to make the inspection compulsory not only in the case of the spring breed of silk-worms but also in that of the summer and autumn breeds. The cost of inspection and the incidental expenses come from the different localities, the Government confining itself to giving more or less pecuniary assistance, as shown below:—

Fiscal year.	Inspection expenses. *yen.*	Aid by Government. *yen.*
31st	259,817.331	75,234.719
32nd...	240,277.826	69,600.831
33rd	238,837.836	74,124.380
34th	321,403.364	99,496.172

Note :—The whole of the inspection expenses for Okinawa and Hokkaidō (until the 33rd fiscal year) came from Treasury.

Epidemics of Domestics Beasts :—Owing to the religious prejudice entertained for a long while against the use of animal flesh and in consequence, the comparatively insignificant development of stock-farming, and owing also to the mountainous character of the country, the appearance of any serious epidemic among domestic animals was a thing unknown in the olden days. It was when the rinderpest spread with terrible virulence in Siberia early in the Meiji era, that the Government first issued a Notification about the prevention of epidemics among domestic beasts. Coming to the 5th year we find that rinderpest appeared in various places, and that it re-appeared in the 7th and 9th years, while another disease, foot-and-mouth disease, making its appearance in Saitama-ken, in the 14th year. On each of these and on all similar occasions, measures for preventing the spread of the epidemic and for compensating the owners of affected animals that were slaughtered, were adopted. The frequent introduction of afflicted beasts from the continent, especially from Korea, in spite of the various preventive measures taken, led the Government to establish on one occasion special inspection offices for it own use at Fusan and Jinsen, in Korea, in order that it might inspect the cattle shipped there for this country. Such offices were also established at Nagasaki, Kobe, and Yokohama, to inspect the cattle as well as the bones and hides coming from Korea, Siberia and Shanghai. Finally by the Notification issued in April of the 33rd year the stations at Kobe and Nagasaki were made permanent (they had been only temporary at first) and the stations at the other three places were abolished. The following table shows the returns at the two permanent offices and the expenses disbursed by the Government on account of the epidemics among domestic animals :—

KOBE INSPECTION OFFICE.

Fiscal year.	No. of cattle.	No. of sheep.	No. of bundle of hides.	No. of package of bones.
31st	100	580	2,655	171
32nd...	44	1,143	11,007	311
33rd...	96	1,112	7,661	327
34th...	433	977	11,109	5 937

NAGASAKI INSPECTION OFFICE.

Fiscal year.	No. of cattle.	No. of sheep.	No. of bundle of hides.	No. of package of bones.
30th...	—	42	—	10,998
31st	582	711	1,632	29,822
32nd	419	2,225	7 354	34,501
33rd...	594	1,779	6,799	67,079
34th...	1,569	967	22,231	130,998

DISBURSEMENTS FROM THE TREASURY ON ACCOUNT OF CATTLE PLAGUE, ETC.

Fiscal year.	*yen.*	Fiscal year.	*yen.*
29th	64,565.021	32nd	26,061.475
30th	23,369.522	33rd	71,465.922
31st	21,084.619	34th	43,793.753

Since the establishment of the inspection offices, it was only once at Nagasaki, and that time through the negligence of a foreign steamer, that the country suffered from the introduction of afflicted beasts, the entry of such having been stopped in all other cases.

PREVENTION OF TUBERCULOSIS IN DOMESTIC ANIMALS:—The prevalence of tuberculosis among the imported cattle and half-breeds has grown formidable, as shown in the following slaughter house returns of Tokyo:—

Year.		Half-Breed.			Foreign Breed.		
		Cow.	Bull.	Total.	Cow.	Bull.	Total.
27th	No. of cattle slaughtered ...	734	284	1,018	6	10	16
	No. of tuberculous cattle ...	322	105	423	2	4	6
	Per cent. of tuberculous cattle.	43.86%	36.97%	41.97%	33.30%	40%	37. 5%
28th	No. of cattle slaughtered ...	783	222	1,004	1	5	6
	No. of tuberculous cattle ...	358	91	449	1	3	4
	Per cent. of tuberculous cattle.	45 77%	40.99%	44.72%	100%	60%	66.66%
29th	No. of cattle slaughtered ...	897	215	1,112	1	1	2
	No. of tuberculous cattle ...	347	36	383	1	—	1
	Per cent. of tuberculous cattle.	38.46%	16.74%	34.44%	100%	—	50%
30th	No. of cattle slaughtered ...	1,265	346	1 611	—	1	1
	No. of tuberculous cattle ...	344	47	391	—	1	1
	Per cent. of tuberculous catt e.	27.19%	13 58%	24.27%	—	100%	100%
31st	No. of cattle slaughtered ...	1,888	743	2 631	—	1	1
	No. of tuberculous cattle ...	585	85	670	—	1	1
	Per cent. of tuberculous cattle.	30.98%	11.44%	25.46%	—	100%	100%

As shown in the above table, of the 5,791 cattle of either foreign or half breed that were slaughtered during the five years under review, no less than 2,332 were affected by tuberculosis, that is to say, 42.7% of the whole. A similar state of things may probably exist in other places, but reports of this sort are not yet accurately known. This disease appears, however, to be rare, if it exists at all, among the indigenous cattle.

The control of cattle suffering from this disease being imperatively necessary both for the improvement of the cattle and for the sake of the public hygiene, a law for preventing tuberculous cattle was promulgated in the 34th year.

Accordingly inspection is enforced at Yokohama, Kobe and Nagasaki over imported cattle, the object of the inspection being to ascertain the presence or absence of any tuberculous disease in such cattle. Here are the returns for the 34th year.

	No. of inspected.	No. of tuberculosis cattle.
Yokohama	37	—
Kobe...	207	4
Nagasaki	988	6

As the Law for the Prevention of Tuberculosis in Cattle is come into full force in July 36th year (1903) the disease may be stamped out in the near future.

To provide a staff of qualified inspectors at all places of importance the Government decided to train about 200 such men during the 35th and 36th fiscal years. The first batch of 35 students, all of them qualified to secure a license as veterinary surgeon, were admitted in September of the 35th year. The course extends over two months during which the pupils attend lectures on bacteorology, climical examination, post-mortem examinations and dissection practices, examination of milk, flesh and urine, and the rules relating to epidemic diseases among domestic beasts.

PRIMARY INDUSTRIES.

FISHERY.

General Remark—Fishing-grounds—Fishery and Fishery Industry—Distribution of the Principal Fish—Financial Standing of the Fishermen—Fish Culture—Salt-refining—Markets—Fishery Legislature.

I. GENERAL REMARKS.

Owing to its geographical position, to the direction of the marine currents in its vicinity and also to the abundance of suitable indentations along the well-wooded coast, Japan is an ideal country for the fishermen. It is not surprising therefore that there are 900,000 families of fishermen or of persons engaged in the marine industry, or over three million individuals, and that the number of fishing boats total over 400,000. Fish and other marine products have constituted from olden times the most important article of food used by our people, and this partiality for Lenten fare is also shared by our nearest neighbors the Chinese who have been, for centuries back, principal purchasers of our marine products.

With the steady increase of our population and the greater perfection of the means of transportation in the interior, the demand on fishing products has began to show striking advance, an advance further accelerated by an increasing demand from abroad. Under these circumstances, our fishermen can no longer remain satisfied with coasting work alone, but are obliged to a greater extent than ever to venture out into the open sea and even to the distant coasts of Korea and of the South Sea Islands.

II. FISHING-GROUNDS.

As described in the chapter on climate the two sets of sea-currents flow along each coast, of our country, the Pacific coast and the coast of the Sea of Japan. Each coast is influenced to a greater or less extent by a warmer current coming from the

south and a colder current coming from the north. The predominance of the one or the other makes a great difference in the temperature of the sea. For instance along the coast northward from Kinkazan, Honshū, the average temperature is below 15° C., while along the eastern coast of Hokkaidō and the Kuriles it is below 10°, owing, in both cases, to the predominance of the colder streams. On the other hand the presence of warmer currents along the coast southward from Izu group as far as the southern extremity of Kyūshū, the average record there is above 20°, while along the coast of the Bonins and Oshima, Satsuma, and the eastern coast of Formosa the temperature is as high as 23°. This presence of two different sets of sea-currents on our coasts, while affecting the geographical distribution of the finny tribe, also contributes to the diversity and richness of our marine fauna and flora. For though the habitats of fauna are closely related to the condition of the bottom of sea, of relative density of the brine, the nature and quantity of the food, etc., the temperature of the sea exerts above all the greatest influence in this respect. This remark applies with special force to the habitat of migratory fish, such as bonito, tunny, etc. which change their abode with the movement of the sea currents. A rough description of the seas which surround our islands of our rivers and lakes will be given below.

1. The Pacific Ocean :—One side of the whole length of Japan beginning with the Kuriles on the north and extending to Formosa on the south, faces the Pacific Ocean. The Kuriles and Formosa are separated by as many as 29 degrees in latitude, and not only in the climate therefore are these two extremities of Japan widely distinct, but also in the temperature as well as in the depth of the sea a great diversity exists in our country, according to places.

To the north of Kinkazan in the north-eastern part of Honshū, is situtated the greatest sea depression in the world, that is Tuscarora. A warm current passes to the south of this part so that the vicinity is very rich both in fauna and flora, sardine, bonito, pagrus, yellow-tail, tunny, cattle-fish, haliotis, etc. abounding. A cold current runs to the north of this depression, and in consequence the fauna and flora living to the north and south of Kinkazan are distinct from each other.

In the sea between the southmost archipelago of Japan proper and Formosa there exists strong warm current. The result is that in this vicinity many kinds of migratory fish are found, especially bonito. The eastern, that is the Pacific, shore of Formosa is precipitous with no good anchorages for ships, and the sea is moreover very deep. The inhabitants too are aborigines, and the fishery as carried on along this coast hardly deserves, therefore, any notice. On the other hand, the sea on the western shore is of moderate depth and a fishery of sardine, trachinrus, pagrus, shark, grey mullet, etc., is actively carried on. However, during rainy seasons, winter and spring in the northern districts and summer and autumn in the southern districts, fishing is practically suspended.

2. The Sea of Japan:—This sea is bounded on one side by the western coast of Hokkaidō and the northern coast of Honshū, and on the other by Saghalien, Manchuria and Korea. A branch of the Black Stream flows through this sea. This branch current runs all the year round along the western coast of Hokkaidō and through the straits of Tsugura and Soya. However at the eastern coast of Korea, especially along the coast northward of Vladivostock, it is found only in summer. The difference between the high and low tides on the opposite coasts does not exceed 1 to 3 *shaku*. At high-tide the current runs northward through the Straits of Korea but on the coast of Japan the tides are very weak and their movement very irregular.

Tunny, bonito and other migratory fish enter this sea along the course of the southern warm current but in the northern part of the sea, where the influence of a colder current predominates, the principal fish are herring, cod, and the like.

3. The Sea of Ohkotsk:—The province of Soya in Hokkaidō faces this sea, and the fisheries as carried on near the towns of Soya, Esashi and along the coast in general chiefly consist of herring and salmon. The open sea fishery is not yet developed, but there is every possibility of fisheries such as cod and others attaining a great importance in the near future.

4. Inland seas:—The largest and most important inland sea in Japan is the Inland Sea already described. The movements of the tides in this enclosed basin of sea are regulated by the three

openings of Shimonoseki, Bungo and Kii. The sea is generally shallow, and as the temperature varies considerably according to the seasons, many fish that come in the beginning of the warm season, go away in autumn as the colder season approaches. Sardine, pagrus, grey mullet, etc. abound. The shores of sea are also noted for their flourishing salt refineries.

The inland seas that come next in importance to the Inland Sea are the Sea of Ise, Tokyo Bay, and the Sea of Ariyake. The fauna living in these seas are more or less distinct according to the size of each basin, the depth of water in it and the nature of the sea bed.

5. Rivers and ponds :—Rivers as fishing grounds, do not of course depend on their length and depth alone. In general salmon find their way up most of the rivers in the northern districts of Honshū and in Hokkaidō, while on the other hand the Plecoglossus altivelis is found in most of the rivers in the central and southern parts of Honshū.

Of the lakes and lagoons found in Japan, Lake Biwa is the largest, next to which come Shimuji in Izumo, Kasumigaura on the boundary between Hitachi and Shimosa, and Hachirogata in Ugo. Fisheries are actively carried on there. The principal fresh-water fish that are found in the rivers and ponds of Japan are carp, Crussian carp, eels, etc.

III. FISHERY AND THE FISHERY INDUSTRY.

1. Fishermen :—Our fisheries first attained their greatest development in the Inland Sea, being extended afterwards to the west and to the east, that is to Kyūshū and to the Pacific shores. In the north, the shores of the most important fishing ground in the whole of Japan are situated along the shores of Hokkaidō. This being the case the fishing population is densest along the shores of the Inland Sea, and is comparatively less along the shores of the Sea of Japan and the shores of Hokkaidō. The density of the fishing population in the main fishery regions, and the rate of population per 1 *ri* of coast line are shown in the following table :—

		Honshū.	Shikoku.	Kyūshū.	Hokkaidō.	Total.
Coast-line (*ri*)		2,705	676	2,406	1,242	7,029
No. of Households		545,937	80,471	228,804	51,920	907,132
Population...		1,832,829	324,471	930,878	250,422	3,338,600
Per *ri* coast-line.	No. of Households ...	201.82	119.03	95.09	41 80	129.05
	Population	677.57	479.98	386.89	201.62	474.97

Note :—The figures for households and population in the above table include both fishermen and those who are engaged in manufacturing marine products. They are based on the returns carried out in the 24th year of Meiji.

2. Boats and Fishing Gear :—Fishing-boats for use either on the sea or in fresh-water aggregate about 420,000. They are all open-boasts with no deck. Even the largest do not exceed 50 *shoku* in length. Here are the returns compiled in the 33rd year :—

	Boats over 5 *ken* in length.	Boats less than 5 *ken* in length.	Total.
Honshū	4,398	238,238	242,636
Shikoku	334	30,684	31,018
Kyūshū	275	76,397	76,672
Hokkaidō	12,675	59,522	72,197
Total	17,682	404,841	422,523

Our fishermen propel their boats as a rule by oars and do not make much use of sails, owing to which custom, the boats have no keel and are generally flat-bottomed. The peculiar shapes of the Japanese boats are the result of long experience of the seas in this part of the world and of the different kinds of fisheries that are carried on. Naturally, the whalers and bonito boats are made especially strong and durable, and even when the sails and masts are torn off by storms, the fishermen generally succeed by taking to the oars and in reaching the shore in safety.

For all their serviceableness, Japanese fishing-boats are not without defects, especially as their construction is not based on scientific principles. For instance they are comparatively frail, and as they are principally made for rowing and not as sailing boats, they are hardly fit to sail against the wind. The absence of a deck is also a serious drawback. The proper authorities have recently begun to take all these points into consideration, with the result that our fishermen are gradually building their boats after the foreign style, and providing them with decks or special apartments protected from

the free entrance of water. These improvements are now to be found in our fishing-boats that are pursuing their business on the shores of Korea.

The Government has also encouraged the construction of fishing-boats of the Western style, by enforcing from the 31st year the Law for the Encouragement of Pelagic Fishery. The result of that law has been that boats of this new style have gradually began to come into use, as shown in the following table :—

Year.	Boats and crew receiving bounties by law.			Boats licensed to pursue sealing, though without receiving bounty.	
	No.	Gross tonnage.	Crew.	No.	Gross tonnage.
31st	8	694	214	1	99
32nd	14	1,419	379	—	—
33rd	15	1,621	392	1	93
34th	14	1,028	296	3	165
Total ...	51	4,762	1,281	5	357

The different kinds of fishing-gear used in Japan are too numerous to be enumerated here in detail, but, broadly speaking, they may be divided into two kinds, that is those for net-fishing and those for angling. The principal kinds of gear belonging to these two divisions are as follows :—

a. Net-fishing Gear.—The pound net is used in Hokkaidō, Honshū, Kyūshū, etc. for capturing herring, salmon, tunny, etc. It is of considerable compass and the haul made with it is usually large. Seine nets are used for capturing sardine and other shoal fish, and the size depends upon the kind of fish to be hauled and also on local circumstances. Purse seine is used for capturing surface fish and is one of the latest innovations in the line of nets used in this country, having been made after the model of an American net. Drift nets are also used for surface fish, such as sardine, tunny, etc. It is used drifting in the current. Gill-net is set up on the bottom of the sea, to catch herring, cod, shrimps, etc. Trawl-nets are used for capturing fish living at the bottom of the sea, as flat-fish, etc. The net operates by trawling. Dredge-nets are used for getting shell-fish,

sea-cucumbar and such inactive sea animals. It is furnished with a cross-beam or teeth to gather in those spoils. There is also another kind of net called *shiki-ami* (spread-net) which is spread on the bottom, and lifted up when fish happen to enter it.

b. Angling-gear.—These are of two kinds, viz., long-line and hand-line, the former being a line with a number of small lines suspended from it as it is left stretched in the sea.

There are, besides the above, other fishing devices, as weir and serragli, generally used in ponds or streams.

The number of different kinds of nets used in the different parts of the Empire was as follows according to the returns made in the 24th year :—

Kind.	Honshū.	Shikoku.	Kyūshū.	Hokkaidō.	Total.
Pound-net	20,329	876	632	5,551	27,388
Spread-net, etc.	19,093	1,160	3,188	6	23,447
Purse seine, etc.	7,640	326	228	79	8,273
Trawl-net, etc...	85,366	6,897	12,439	7,462	112,164
Seine-net, etc....	21,374	3,463	7,041	1,511	33 389
Drift-net and grill-net ...	540,252	11,275	24,639	234,830	810,996
"Square-net"...	6,395	540	1,781	150	8,866
"Throw-net"...	62 135	2,512	14,797	20	79,464
Total	762,584	27,049	64,745	249 609	1,103 987

3. VALUE OF TAKES OF FISHES AND OF MARINE PRODUCTS :— The returns showing the value of the takes of fish and of the marine products for the five years ending the 33rd year are as follows :—

Year.	Takes. *yen.*	Marine products. *yen.*
29th	38,132,001	24,155,239
30th	45,038,816	29,740,358
31st	44,840,022	26,190,460
32nd	52,151,878	31,678,766
33rd	56,833,150	32,725,411
Average...	47,399,173	28,898,047

Giving the returns for the 33rd year for the main divisions of the Empire, the result is as follows :—

	Takes.	Marine products.
Honshū	34,430,746	16,147,437
Shikoku...	4,303,031	2,317,218
Kyūshū	6,251,304	3,630,684
Hokkaido	11,848,069	10,630,072
Total	56,833,150	32,725,411

The takes made in the 33rd year may be divided as follows according to the kind of fish. The figures for Hokkaikō represent the amount of marine products, there being no returns available for the takes.

Kind.	Quantity (*kwamme*).	Value (*yen*).
Herring	29,982,874	7,144,072
Sardine	48,739,197	7,306,780
Bonito...	10,996,716	4,365,887
Cuttle-fish	4,359,816	1,562,951
	3,255,896	1,136,710
Mackerel	7,512,857	2.159,018
Tunny...	4,084,156	1,814,704
Yellow-tail...	5,462,602	2,224,297
Cod	1,817,148	372,827
Shark	1,298,998	464,616
Pagrus...	5,228,835	4,109,802
Salmon	2,045,569	1,023,419
Trout	170,273	129,259
Plecoglossus	586,479	449,213
Haliostis	869,563	508,478
Sea-cucumber	683,810	174,494
Homarus vulgaris	4,200,264	1,345,340
Oyster...	993,655	190,091
Cytheria	1,518,622	93,305
Mussel...	296,800	15,366
Grey mullet	1,574,504	877,080
Poulpe...	1,320,632	462,374
Scomberomorus	1,245,047	1,011,187
Horse mackerel...	2,270,473	612,615
Halibut	681,066	306,125
Barrandas	384,170	134,382
Muraenosox	606,057	364,053
Lateolabrax Japonica	254,557	185,669
Sand eel	565,384	68,405
Mysis	1,188,245	153,932
Flying dolphin	575 393	200,698
Flying fish...	1,260,437	103,214
Gilthead	337,055	264,710

	Quantity (*kwamme*).	Value (*yen*).
Konosirus	392,556	185,760
Dab	2,354,440	823,355
Eel	1,023,664	650,520
Cololabis	137,226	62,122
Carp	128,493	122,842
Crussian Carp	362,321	194,759
Sea-weeds (algæ)	7,441,117	870,918
Other kinds	2,135,888	12,587,501
Total	160,342,855	56,833,150

The classification of marine products for the 33rd year is as follows:—

Kind.	Quantity (*kwamme*).	Value (*yen*).
Cuttle-fish	1,665,493	2,466,004
Beche de mer	94,141	206,757
Sea-ear (dried)	129,555	406,549
Sardine (dried)...	2,535,988	941,603
,, ,, ...	564,793	277,085
,, (boiled and dried)	3,142,675	2,138,777
,, (salted)	2,204,532	617,263
Mussel (dried)	63,414	64,117
Bonito (dried and smoked)	1,972,460	4,881,303
Tunny (do.)	164,495	288,809
Prawn (dried)	598,220	682,321
Shark's fin	99,824	264,171
Kainohashira	9,382	35,663
Mackerel (salted)	1,410,681	556,357
Tunny (salted)...	214,848	79,008
Cod (dried)	144,219	131,775
Cod (salted)	317,203	55,651
Salmon (salted)	1 131,194	523,335
Hoshinori	148,615	472,211
,, (sheets)	8,297,500	41,736
"Sasame" and "Dō" Herring ...	5 749,791	1,204,332
Herring (guano)	26,147,225	7,058,117
Hoshika	4,483 018	1,400,319
Fish oil	1,679,311	399,648
Yellow-tail (salted)	781,244	433,898
Tengusa	285,642	187,588
Funori	257,932	154,066
Others...	—	6 755,948
Total. (*kwam*)	55,995,895	
(sheets)	8,297,500	32,725,411

IV. DISTRIBUTION OF THE PRINCIPAL FISH, THEIR VALUE, CAPTURE AND MODE OF CURING.

HERRING :—This fish is caught in Hokkaidō, Aomori and Akita. In Hokkaidō the fishing season extends from March to May. The fishing grounds lie along the western shores and pond-nets and grill-nets are used. The takes during the five years ending the 32nd year and the value of these takes were as follows :—

Year.	Quantity (*kwam.*).	Value (*yen*).
29th	41,028,680	8,340,666
30th	51,818,880	10,650,618
31st	35,083,640	7,289,811
32nd...	38,057,480	9,047,957
33rd	29,982,874	7,144,072
Average	39,194,311	8,494,625

Enormous quantities of firts being caught at a time it is not possible to carry out any elaborate process of curing the fish. In general therefore only the part along the backbone and raw are reserved for food. From the other parts oil is got, and the resulting refuse is used as guano. This guano amounts to 700,000 to 1,000,000 *koku* a year (40 *kwam* equal to 1 *koku*). The market of guano is vitally related to the prosperity of the Hokkaidō fisheries, and the recent import of bean-cakes from North China, of herring guano from Russian Siberia, and also sardine from Korea is seriously affecting the markets of Hokkaidō guano. In view of this circumstance the authorities have lately begun to encourage the preparation of smoked and salted herring, the former among the fishermen of Akita and Aomori, and the latter among those of Hokkaidō. Samples have been sent both to China and Australia.

SARDINES (*Chipanobon*) AND ANCHOVIES (*Engranlis*):—There fish are caught almost everywhere along our shores with seine-nets, pound-nets or purse-seines. The greater part of the fish is used as guano, but no small part is used as food, after having been boiled and dried. The yield amounts to about 40 million *kwam* valued at about 6 million *yen*. The returns for last five years are as follows :—

Year.	Quantity (*kwam.*).	Value (*yen*).
29th	48,610,784	4,601,782
30th	38,392,354	4,893,412
31st	36,633,689	5,711,023
32nd...	48,735,376	6,579,617
33rd...	48,749,277	7,310,120
Average	44,224,300	5,819,191

The demand for sardines and anchovies as food-stuff being still limited in Japan, the authorities are encouraging the people to manufacture tinned sardine and anchovy sauce after the French style.

Bonito (*Gymnousarda Affinis Cantor*):—This fish is to be found in most parts of our southern seas, for though it is migratory and haunts warm currents, its area of distribution is comparatively wide. It is caught by angling, the bait used being generally living sardines. The fish is used as food both raw and cured, and the business of making cured and smoked bonito is highly important, this dried flesh being used for seasoning the food. The business is extensively carried on in Tosa and Izu. The returns for the last five year are shown below:—

Year.	Takes (*kwam.*).	Value (*yen*).	Dried Bonito (*kwam.*).	Value (*yen*).
29th	9,070,229	2,407,828	1 094,407	1,796,137
30th	7,736,432	2,754,442	1,228,063	2,974,448
31st	9,060,619	3,404,265	1,472,269	2,951,907
32nd	9,688,513	3,931,974	1,375,926	3,376,668
33rd	10,990,716	4,347,887	1,972,460	4,881,303
Average	9,309,302	3,369,279	1,428,625	3,196,093

Pagrus (*Porgy*):—There are several varieties of this fish, as Ma-tai (*Pagrus major*) Ki-dai (*Pagrus turnifrous*). The fish is very widely distributed but its most noted fishing-ground is the Inland Sea which the fish visits in the intermediary season of spring and summer. They are first gathered together by sham nets and then caught by seine nets hauled by boats. Long lines are also used to some extent.

The fish is mostly sold raw, and very seldom in a salted form. It is also found very largely in the seas of Korea. The returns during the last five years are as follows:—

Year.	Capture (*kwam.*).	Value (*yen*).
29th	5,117,708	2,214,377
30th	4,752,147	2,609,187
31st	4,445,846	2,695,830
32nd	4,178,697	3,316,733
33rd	5,228,835	4,109,802
Average	4,744,647	2,989,186

Scomberomorus Sinensis. Lacép :—This fish frequents more our eastern and south-western seas and less our northern seas. It swims in shoals and is caught by drift-nets. In the Inland Sea it is caught in the spawning season :—

Year.	Capture (*kwam.*).	Value (*yen*).
29th	1,110,955	393,913
30th	995,351	509,012
31st	1,097,964	624,027
32nd	1,044,086	766,093
33rd	1,245,047	1,011,187
Average	1,098,881	660,846

Tunny (*Thumus*) :—This fish is found everywhere and caught by means of pound-nets, drift-nets, and long-lines. It is generally sold fresh, but is sometimes preserved in salt or used in the same way as dried bonito. The figures for the last five years are :—

Year.	Capture *kwam.*).	Value (*yen*).
29th	5,034,733	1,348,413
30th	5,107,859	1,532,091
31st	3,484,084	1,423,123
32nd	3,108,426	1,327,268
33rd	4,084,156	1,814,704
Average	4,163,852	1,489,120

Yellow-tail (*Seriola*) :—This fish is caught mostly in our south-western seas and in the Sea of Japan, with pound-nets, grill-nets or long-lines. It is sold either fresh or salted :—

Year.	Capture *kwam.*).	Value (*yen*).
29th	3,854,715	1,056,566
30th	3,547,520	1,128,666
31st	3,345,915	1,108,295
32nd	3,784,358	1,683,773
33rd	5,462,602	2,224,297
Average	3,999,022	1,440,319

MACKEREL (*Scombera*):—There are several varieties of this fish and they are caught everywhere by means of "spread"-nets, seine-nets, and ordinary fishing-rods. It is mostly preserved in salt. The takes are as follows:—

Year.	Capture (*kwam.*).	Value (*yen*).
29th	6,510,478	1,069,663
30th	5,789,806	1,299,612
31st	6,445,249	1,475,716
32nd	5,584,275	1,934,091
33rd	7,512,857	2,159,018
Average	6,388,533	1,587,620

COD (*Pollachius*):—This fish is caught in the Sea of Japan and the northern part of the Pacific, long-lines and grill-nets being generally used for capturing it. It is sold in salted or dried state while the oil is valuable as a medicine. The figures for the last five years are as follows:—

Year.	Capture.		Dried manufacture.		Salted.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	kwam.	*yen.*	*kwam.*	*yen.*	*kwam.*	*yen.*
29th	1,463,991	257,764	213,975	124,434	232,109	33 175
30th	2,311,725	444,934	1,068,104	396,555	286,970	33 577
31st...	2,052,252	391,291	1,029,135	380,379	184,745	20,079
32nd	2,625,632	539,673	150,650	70,200	290,460	129 512
33rd	1,817,148	372,827	144,219	131,775	317,203	55,651
Average	2,054,150	401,298	521,216	220,669	262,297	54 399

SALMON (*Oncorphuchus*) AND TROUT (*O. Macrostromus*):—Salmon and trout live both in salt and flesh water, and they come up the streams flowing into the Sea of Japan or the northern part of the Pacific. They are especially abundant in Hokkaidō Aomori, Akita and Echigo. In the sea pound-nets are used while in the rivers seine-nets are generally used. Weirs are also used in some places. Both salmon and trout are preserved in salt or are tinned. Artificial spawning has been started to keep up the supply which lately began to fall off. The figures for the last five years are as follows:—

Year.	Salmon. Quantity (*kwam.*).	Salmon. Value (*yen*).	Trout. Quantity (*kwam.*).	Trout. Value (*yen*).
29th	2,725,360	989,683	2,769,678	300,905
30th	3,528,700	1,411,918	290,723	80,032
31st	3,103,080	1,344,753	263,993	81,312
32nd	2,533,440	1,096,217	191,621	86,412
33rd	2,045,569	1,023,419	170,273	129,259
Average...	2,787,230	1,173,198	737,258	135,584

Shell-fish and Mollusks.—Of the shell-fish caught in our seas, ear-shell (*Haliotis*) is of the greatest commercial value, for besides its flesh being largely exported to China the shells are extensively used in industry. Then come the oyster (*Ostra*) which is reproduced artificially in many places. The other shell-fish of commercial value are the pearl shell-fish (*Avicula*), Mylilus crassitesta, Razor shell, Solecurtus constricta (exported to China), Cytherea meretrix, Tapes philippinarum, Mactra sulcatoria, Arcagranosa, etc. The returns giving the takes and the value are shown below:—

Year.	Ear-shell. Quantity. *kwam.*	Ear-shell. Value. *yen.*	Oyster. Quantity. *kwam.*	Oyster. Value. *yen.*	Cythera. Quantity. *kwam.*	Cythera. Value. *yen.*	Mylilus. Quantity. *kwam.*	Mylilus. Value. *yen.*
29th.....	982,909	338,794	1,304,559	110,181	605,730	36,408	647,493	26,046
30th.....	782,617	363,813	1,098,707	103,903	684,661	59,060	443,604	21,755
31st.....	717,196	391,629	597,350	120,775	1,067,651	100,989	377,078	25,839
32nd ...	1,037,572	545,366	963,181	187,039	1,483,388	119,870	258,205	13,403
33rd ...	869,563	508,478	993,655	190,091	1,518,622	93,305	296,680	15,330
Average.	877,971	429,616	991,490	142,398	1,072,010	81'926	404,612	20,475

Lobster and Prawns:—These are caught, the former in the north-western parts of the Pacific and the latter in the inland seas and bays. Lobsters are generally caught by grill-nets and the other fish by trawl-nets and other nets. The takes and value of the same are shown below:—

Year.	Capture (*kuam.*).	Value (*yen*).
29th	3,440,503	648,982
30th	3,641,732	815,015
31st	3,489,962	883,388
32nd	4,588,174	1,095,485
33rd	4,200,264	1,345,340
Average	3,872,127	957,642

Cuttle-fish :—The fish is caught by angling, and in the dried form they rank first in the list of exported marine products :—

Year.	Quantity (*kwam.*).	Value (*yen*).
29th	10,060,515	1,809,243
30th	8,578,722	1,880,941
31st	7,081,095	1,949,490
32nd	7,616,099	2,492,108
33rd	7,615,712	2,699,661
Average	8,190,429	2,166,289

Sea-weeds :—The sea-weeds that deserve to be mentioned on account of their commercial value are the *Kombu* (Laminaria), *Amanori* (Porphyra tenella. Kijelhum), *Tengusa* (Galidium lamouroux), *Hijiki* (Cystophyllum I. Agardh), *Arame* (Ecklonia Hornemanna). *Wakame* (Undaria Suringar), all of which are used as food. Then there are the Funori (Gloivpeltis J. Agardh) which is used making paste, and the *Kajime* (Eklonia) from which iodine is extracted :—

	Kombu.		Tengusa.	
Year.	Quantity (*kwam.*).	Value (*yen*).	Quantity (*kwam.*).	Value (*yen*).
29th...	6,097,547	494,562	944,619	238,818
30th...	9,066,984	630,461	736,925	195,031
31st	5,053,154	409,228	479,141	146,310
32nd	7,965,725	734,129	761,317	201,266
33rd	6,454,078	602,777	965 652	252.305
Average	6,927,498	574,231	777,531	206,746

Whales :—The whales caught in our seas belong to Mysticete and Denticete varieties. The right whale, sulphur bottom whale, and humpback whale that belong to the former variety were formely caught in very large number in the seas of Kyūshū and Shikoku, but this is no longer the case at present. The Cachalot sperm whale and the sperm whale porpoise are found in the open sea in the eastern and southern Pacifics, and the authorities are now encouraging our whalers to start the open sea whaling in competition with the foreign whalers. The principal whaling grounds in our seas are Arikawa in Nagasaki, Yobuko in Saga, Senzaki in Yamaguchi, Tsuro and Ukitsu in Kōchi. The capture of whales in these four provinces recently was as follows :—

Year.	Nagasaki.		Saga.		Yamaguchi.		Kōchi.		Total.	
	No.	Value. *yen.*	No.	Value. *yen.*	No.	Value. *yen.*	No.	Value. *yen.*	No.	Value. *yen.*
26th	49	71,957	15	24,650	20	29,400	20	23,122	104	149,129
27th	34	60,885	22	38,000	20	33,200	31	38,164	107	260,249
28th	54	125,953	18	37,350	33	41,120	32	44,022	137	248,445
29th	49	107,563	14	48,530	34	70,590	47	52,214	144	283,397
30th	50	154,424	10	27,620	35	89,050	25	33,978	115	191,500
Average ...	47	104,156	16	35,230	28	52,672	31	38,300	121	226,544

Sea-Otter and Fur-Seals : — Sea-Otters are caught in the Kuriles and the others are caught in the northern Pacific and the Sea of Japan while they are on their way to their northern home in summer. Formerly the otters and seals in the Kuriles fell mostly into the hands of foreign sealers, but of late owing to the encouragement given by our Government, the capture of these valuable fur animals of the sea by our fishermen has become quite satisfactory :—

Year.	Sea otter. No.	Fur Seals. No.	Total.
30th	26	4,616	4,642
31st	21	4,757	4,778
32nd	16	6,518	6,534
33rd	11	7,533	7,544
34th	12	7,045	7,057
Average	17	6,094	6,111

The price of otter skin is above 1,000 *yen* a piece while that of the other is about 25 *yen*.

V. THE FINANCIAL STANDING OF THE FISHERMAN.

The only data available in making inquiries into the extent of our fishermen's investments in boats and nets are those of the 24th year. According to the result of that year's inquiries the investment amounted to 24,400,000 *yen* approximately, which, distributed among 900,000 fishing families, corresponds to only about 27 *yen* per family. There are other fishing gear besides, but they are comparatively of small value so that the means which our fishermen have at their disposal must be said to be extremely limited. Below is a table giving the number of fishing boats and nets :—

	Fishing-boats.		Nets.	
	No.	Value (*yen*).	No.	Value (*yen*).
Honshū	222,942	5,246,974	813,046	2,715,722
Shikoku	29,422	722,471	27,601	1,034,550
Kyūshū	72,378	2,106,847	78,164	6,508,054
Hokkaidō... ...	52,301	1,584,450	249,848	4,481,985
Total	377,043	9,660,742	1,168,659	14,740,311

Such is the economy of our fishing people, but it is evident that it admits of great improvement if they are encouraged to lay by their earnings against the bad times that must necessarily occur from time to time in their business, and if they are further encouraged to make continuous improvements in their methods of fishing. Such improvements are sure to yield large returns in view of the fact that the market price of marine products has recently gone up very high.

Perhaps in no part of the country are such improvements more imperatively necessary than in Hokkaidō. It is now about 550 years ago since the south-western corner of that island was first opened by the settlers from Echizen. The fishery in Hokkaidō was at that time a primitive affair, principally owing to the remoteness of the place from any of the markets, and also owing to the fishermen's ignorance of the best way of disposing of the fish caught. Owing, however, to the introduction of the manufacture of guano on the one hand and to the invention of pound-nets on the other, a strong impulse was imparted to the development of the industry, and this resulted in a striking increase in the export of marine products to Japan proper. On the abolition of the local feudal office and the establishment of the Colonial Office in the 2nd year, the fishing monopoly formerly given to only a few privileged fishermen was done away with, and at the same time the excise duty stations were abolished. All the fishermen were allowed to engage in the fishery, and the Government adopted, moreover, a certain arrangement for advancing loans at a low rate of interest to the fishermen, with the object of encouraging the business and also of attracting to the island settlers from other parts of the country. The discontinuation of this loan system

on the abolition of the Colonial Office and the inauguration of the local administration system placed the fishermen in an embarrassing situation. Even at present they are obliged in order to obtain their working funds, to have resource to loans at exorbitant rates of interest, and often they have to pledge beforehand the anticipated catch of the season. Under the circumstances the lion's share of the profits coming from the fishery goes into the pocket of money-lenders, and it is hardly possible to expect the development of the industry while things continue in this condition.

The number of nets used and the number of fishermen engaged in the herring fishery in Hokkaidō are as follows :—

	Nets.			Fishermen.			
Year.	Pound-nets.	Grill nets.	Other nets.	Pound-nets.	Grill-nets.	Seine-nets.	Total.
28th.....	5,088	298,080	279	2,920	10,445	229	13,594
29th.....	5,099	280,800	314	2,801	10,045	203	13,049
30th.....	6,161	304,920	315	3,020	11,201	230	14,451
31st.....	6,302	361,440	341	3,404	12,261	246	15,901

Reliable data about proceeds and funds do not exists, the only returns available being those on proceeds and taxes by the Home Office. These data are as follows :—

(Inquiries based on 86 fishing guilds of the 124 existing in Hokkaidō.)

	yen.
Proceeds...	7,216,359
Taxes	391,882
Fishery tax	274,801
Expenses incidental to paying taxes	21,505
Guild expenses	39,541
Village expenses...	56,034

The rate per capita of 39,259 member of the guilds is as follows :—

	yen.
Proceeds	183.00
Taxes	9.98

For obtaining so much proceeds the fishermen required funds amounting to about 9,300,000 *yen*. This is based on the

estimate that the sum of 9 million *yen* is used on account of fixed and working funds, exclusive of the sum required on account of public burdens; and on the estimate that the fixed funds form about a third of the sum, and the working funds the remaining two-thirds. The working funds amounting to 6 million *yen* are generally obtained by loans, and this view has been borne out by the inquiries made into the accounts of 88 guilds out of the total 124. The result of the inquiries was as follows:—

FISHING FUNDS.

	yen.
Funds comings out of the fishermen's own pockets	4,333,767
Funds obtained by loans	5,369,926
Loans from the guilds	2,590,396
Loans from capitalists engaged in other lines of business in Hokkaidō	2,287,224
Loans from other parts of Japan	492,304
Total	9,703,693

The following estimates show the accounts of the capital required for one set of pound-nets used in the herring fishery:—

		1st class.	2nd class.	3rd class.	4th class.
		yen.	*yen.*	*yen.*	*yen.*
Fixed capital.	Net, boats, tools, etc.	2,500	2,626	2,500	3,081
	Construction of boat and ships ...			1,500	
	Purchase of one fishing-ground ...			500	4,319
	Buildings			1,500	
	Deposits for ground leased	455			
	Total	2,955	2,626	10,500	7,400
Working expenses.	Rent of fishing-ground	528	528		
	Wages				
	Food				
	Fuel	2,168	2,168	2,310	2,310
	Repairs				
	Sundries				
	Total	2,696	2,696	2,310	2,310
	Grand Total	5,651	5,322	12,810	9,710

The capital required by every 100 grill-nets used in the herring fishery is estimated as follows :—

		1st class. *yen.*	2nd class. *yen.*	Average. *yen.*
Fixed capital.	Nets	300		
	Other gear	100	700	625
	Boats...	150		
	Total...	550	700	625
Working expenses.	Wages	385		
	Food...	70		
	Fuel	40	600	650
	Ropes, mats etc.	55		
	Rent of curing grounds	150		
	Total	700	600	650
	Grand total...	1,250	1,300	1,275

The herring fishery business is, as circumstances stand at present in Hokkaidō, placed in a disadvantageous situation, for during the fishing season which lasts for only two or three months, laborers have to be engaged at comparatively higher rate of wages than they ordinary receive, in addition to which they are fed at the expense of employers. Money being very urgently needed and very scarce, the rate of interest demanded is generally exorbitant as shown in the following table :—

Year.	Average rate in Tokyo and Osaka.	Average bank rate at Hakodate and Osaka.	Average interest for a loan of over 1,000 *yen*.				
			On negotiable security.	On real estate.	On marine products.	On boats.	On credit.
	%	%	%	%	%	%	%
28th	9.7	12.6	11.6	12.2	12.2	16.4	12.0
29th	9.7	11.0	10 6	11.3	10.9	15.6	10.7
30th	9.9	11.7	11.1	11.8	11.4	12.8	11.1
31st	11.2	12.8	—	—	—	—	—
32nd	9.8	11.3	—	—	—	—	—
Average ...	10.1	11.9	11.1	11.8	11.5	14.9	11.3

If the funds required demand such high rate of interest, the process of curing fish adopted in Hokdaidō is similarly beset with disadvantages. The kettles used in the process do not, for instance, admit of the use of coal. Faggots, far more costly than coal, have to be used, and of course the business

of manufacturing marine products leaves therefore only a narrow margin of profit. If, however, the Hokkaidō fishermen were able to procure cheaper money for their fixed capital and were able to devise at the same time some means of curtailing the working expenses and cost of production, and if on the other they were to inaugurate a new departure in the manufacture of smoked or salted marine products suitable for the foreign market, the industry would be sure to be attended by far greater prosperity than it is at present.

VI. FISH CULTURE.

Fish culture is now extensively carried on both in fresh water and in salt. In the fresh water pisciculture, the raising of the carp, snapping turtle, grey mullet, and eel, are most important enterprises undertaken while in the sea-water the culture of oyster, the *Amanori* and some shell-fish is regarded as being the most profitable. In the case of carp and turtle the rearing commences from spawning, while in that of the grey mullet and the eel the young fish are let in the rearing-pond. In the artificial fecundation of oyster and aircula, faggots or cracked stones are placed in the water in order to permit of the eggs attaching themselves to their surfaces. In the cultivation too of the sea-weed porphyra faggots are placed in position to arrest the zoospores. The inland sea near Tokyo and Hiroshima is noted for these artificial fecundation. Some other shell-fish are reproduced by transplanting the little fish shoals.

The following table shows the area of the different artificial fecundation stations and the value of the fish obtained by this process :—

		Honshū.	Shikoku.	Kyūshū.	Hokkaidō.	Total.
Snapping turtle.	area (*tsubo*).	13,112	—	219,094	—	232,206
	value (*yen*).	7,698	—	647	—	8 345
Oyster	area („)	1,397,246	18,837	193,107	—	1,609,190
	value („)	98,266	100	23,700	—	122,066
Carp...	area („)	7,063,855	364 519	321,589	1,650	7,751 613
	value („)	212,114	821	2,375	245	215 555

		Honshū.	Shikoku.	Kyūshū.	Hokkaidō.	Total.
Crussian carp ...	area (*tsubo*).	3 348.132	118,015	65,197	—	3,531,344
	value (*yen*).	4 813	72	742	—	5,627
Eel	area („)	1,461,283	115,000	475	—	1,810,693
	value („)	40,248	18	76	—	40,342
Porphyla	area („)	1,527,244	—	283,450	—	1,810,694
	value („)	158,799	—	11,408	—	170,207
Others	area („)	10,119,947	73 882	3,098,349	—	13,292,178
	value („)	155,640	486	26,621	8	182,755
Total ...	area („)	24,930,819	690,253	4,181,261	1,650	29,803,983
	value („)	677,578	1,497	65,569	253	744.897

Artificial spawning of salmon and trout is now carried on extensively both in Hokkaidō and in Honshū, in view of the fact that the takes of these fish have declined lately. The salmon spawn liberated in those districts are as follows :—

Year	Chitose (Hokkaidō).	Niigata-ken.	Akita-ken.	Total.
25th	3,626,415	—	—	3.526,415
26th	7.355 640	—	—	7,355,640
27th	2,700,729	—	—	2,700,729
28th	8,540,598	—	—	8 540,598
29th	6 984 178	—	404,989	7,389 167
30th	3 815 588	—	368.952	4 184,540
31st	7,881,222	—	339,466	8 220,688
32nd	10,453,486	2,752,145	168,756	13,374,387
33rd	10,190,355	2 854,197	334,394	13.378,946
34th	12 665,214	4,330,992	340,000	17,336,206

VII. SALT-REFINING.

The salt used in Japan is mostly derived from sea-water, from which it is extracted either by means of the sun's heat alone or by sun's heat supplemented by artificial heat. The mineral salt produced in Japan is hardly worth mentioning, it being extremely small in quantity.

The refining business dates back for more than 20 centuries for the natural advantage enjoyed by Japan in the manufacture of this essential ingredient of food enabled our people to carry on the business almost everywhere. At present the work is carried on in no less than 34 prefectures besides Formosa, and the people engaged in the business number over

100,000. The output differs according to the year, but on an average it reaches about 6 million *koku*. Here is a table giving statistics with regard to this industry :—

Year.	area of field. *cho*.	No. of kettles.	Output. *koku*.	Output. *yen*.
24th	7 442.3	16,795	5,507,097	4,075,742
25th	7,483.6	17,293	5,655,795	3 584,093
26th	7,600.1	17,010	6,649,263	3,659,353
27th	7,721.5	17,144	6,325,891	3,483,078
28th	7,507.0	16,253	5,995,052	3 866,674
29th	7,578.3	16,547	5,235,024	7,620,616
30th	7,841.3	18,452	6,178 094	10,104,771
31st	7,906.8	19,075	6,364,979	8,218.514
32nd...	7,639,8	16,188	5,811,021	7,542,942
33rd	7,774.2	17,584	6,591,078	9,388,694

The districts bordering on the Inland Sea produce about eight-tenths of the whole output produced in Japan proper. Kyūshū produce one-tenth approximately, and the rest the remaining one-tenth.

In Formosa this industry promises to become far more prosperous than in Japan proper, owing to the greater natural advantages enjoyed by it in this connexion. The figures for the two years specified are given below :—

Year.	area (*cho*).	No. of person engaged.	Output (*koku*).
31st...	168	1,122	19,726
32nd	260	1,336	132,337

It may be added that the industry in that island has had a remarkable development since the 32nd year, though the precise figures in the late years are not yet forthcoming. Salt is now a state monopoly in the island whence an enormous quantity is shipped to Japan proper.

Of the two methods of refining the natural heat system is extensively adopted in Formosa. This process does not practically differ from that seen in some Western Countries. To give a brief description of it a circular embankment enclosing a certain empty space is first constructed in the shoal. The space within this embankment is divided into two sections, one being used for concentrating the brine and the other for crystallization. The sea-water

is first led into the concentration pond, where it is there left to evaporate. After the proper degree of evaporation has been reached, it is next led into the crystallization pond. On further evaporation the salt contained in the water deposits itself on the sand. These deposits are then raked off, and conveyed to a storehouse. In some parts of northern Formosa a method resembling very much that adopted in Japan proper is followed.

There are two methods of extracting salt by artificial heating from the sea-water, one being called "Agehama" (up-shore style) and the other "Irihama" (in-shore style). The latter is far more popular than the other, and indeed about 90 per cent. of all the salt produced in Japan proper is produced by the "in-shore style." This style resembles very much the Formosan style. First a suitable plot is marked out on the beach on the occasion of the ebb-tide and is enclosed by embankments. When the sea-water which is let into the plot, has sufficiently evaporated, that is, has evaporated to such an extent as to cause it to deposit the saline matter it contains, the deposits are collected and transferred to a box-shaped vessel made of either mud or wood. Sea-water is then poured upon the vessel and the thick saline liquid thus obtained is kept in a reservoir, to be afterwards heated in a kettle and evaporated. Sometimes the vessel is dispensed with, and in place of it a basket and a receptacle, generally a pail, are used. This style is commonly used in the salt-fields along the shores of Tokyo Bay.

In the "up-shore system," the sea-water is sprinkled repeatedly on the shore up the beach; the sand charged with saline ingredients is put into a suitable vessel on which a quantity of sea-water is poured. A thick brine is thus produced and on its being heated, the evaporation causes the salt held in suspension to be deposited.

As the salt industry carried on in Japan was regarded as imperfect in several respects, the Government caused the matter to be inquired into some years ago, and at last in the 31st year, a model salt refinery was established at Tsudamura, Chiba-ken, and another at Matsunaga, Hiroshima-ken.

VIII. MARKETS.

HOME MARKETS:—As already mentioned in the preceding sections the gross value of catch of fish in Japan is estimated at about 60 million *yen* a year. Of the manufactured marine products, the dried bonito, guano, salted or dried fish and shell-fish, and sea-weeds are principally consumed at home.

It is not possible to estimate with anything like accuracy the gross quantity and the value thereof of fish and marine products consumed at home either fresh or in a prepared form. However as 8 million *yen* worth of manufactured products out of the total 28,900,000 *yen* is exported abroad, the consumption at home may be roughly estimated at 20,900,000 *yen*, broadly divided as follows:—

Dried bonito and substitutes	3,464,415	*yen.*
Guano	9,029,457	„
Dried or salted fish or shell-fish	8,430,200	„
Sea-weeds	1,311,161	„

Data are not available as to the amount of fish, etc. consumed in a fresh state, but that this comes up to a large amount admits of no doubt, in view of the great extension of the market recently owing to the improvement of the means of communication. Even raw fish come from Korea to some parts of Japan. Some idea as to the quantity of raw fish consumed may be obtained from the statistics of our principal fish-markets. The following gives the value of the raw fish which was sold in those markets in the 29th year:—

Tokyo	3,708,896	*yen.*
Ōsaka	1,479,985	„
Atsuta (Nagoya)	473,865	„
Hakata	220,385	„
Shimonoseki	169,152	„

The condition of delivery and distribution were as follows at those markets:—

TOKYO (33rd year).

Imports. Value.	Delivery.		Exports. Value.	Distribution.	
yen. 3,708,896	Bōshū	43%	*yen.* 3,708,896	Tokyo	80%
	Sagami	7.9%			
	Izu	12.0%			
	Suruga	12.0%			
	Kazusa	4.9%			
	Mito and Chōshi	12.0%		To provinces	20%
	Hokkaidō and San-Riku.	8.2%			

ŌSAKA (34th year).

yen. 1,479,985	Kishū	25%	*yen.* 1,479 985	Osaka and suburbs	95%
	Shikoku	20%			
	Chūgoku	20%			
	Kyūshū	20%		Yamato	4%
	Near shores	6%			
	Izumi	6%		Kyoto	1%
	Korea	3%			

ATSUTA (29th year).

yen. 475,865	Miye	25%	*yen.* 131,238	Nagoya	10%
	Shizuoka	10%		Gifu	30%
	Chiba	7%		Shiga	30%
	Fukui	5%		Kyoto	20%
	Osaka	8%		Nagano	20%
	Near shores	35%			

HAKATA (29th year).

yen. 220,385	Korea	20%	*yen.* 179,083	Kumamoto	30%
	Nagasaki	40%		Osaka, Yamaguchi	10%
	Near shores	40%		Saga, Ōita	10%
				Fukuoka	50%

SHIMONOSEKI (29th year).

yen. 169,152	Nagasaki	40%	*yen.* 161,547	Osaka	25%
	Satsuma	10%			
	Tsushima	10%		Kyoto	30%
	Hirado	15%		Okayama	15%
	Karatsu	5%			
	Wakamatsu	10%		Buzen	10%
	Near shores	5%			
	Gotō	5%		Iyo	20%

The market price necessarily differs according to locality, but some ideas on this point may be gathered from the following quotations :—

AVERAGE PRICE, (*yen*) PER 10 *kwam.* IN THE 34TH YEAR.

	Pagrus.	Tunny.	Scomgero-morus.	Halibut.	Mackerel.	Bonito.	Sardine.	Grey Mullet.	Yellow-tail.
Tokyo	15	11	9	9	7	8	—	—	6
Ōsaka	22	9	11	17	8	10	6	8	9
Shimonoseki	15	10	14	11	6	8	5	8	9
Yonago	9	—	13	4	4	—	3	6	10
Atsuta	18	13	18	10	—	—	—	—	7
Average	16	11	13	10	6	9	5	7	8

The market shows the upward tendency owing to the greater demand, as shown from these figures based on the market in Ōsaka :—

Year.	Amount delivered. *yen.*	Sale by whole-sale dealers. *yen.*	Sale by middlemen. *yen.*
25th	1,552,650	607,915	202,436
30th	1,241,654	1,379,615	459 422
34th	1,479,985	1,655,538	551,294

MARKET PRICE OF RAW FISH PER 10 *kwam.*

	25th year. *yen.*	30th year. *yen.*	34th year. *yen.*
Pagrus	15.00	18.00	20.00
Tunny	6.00	7.50	8.50
Yellow-tail	7.50	8.50	9.50
Bonito	6.30	8.50	9.50
Shark...	4.80	5.50	6.50
Lobsters and prawns ...	7.50	9.00	11.00

FUSHI :—There are several kinds of the *Fushi* (dried and smoked fish just like dried bonito), these being bonito *Fushi*, tunny *Fushi*, mackerel *Fushi*, and *Fushi* made of miscellaneous fish. The principal centres of bonito *Fushi* and their output in the 33rd year were as follows :—

	Output (*kwam.*).	Value (*yen*).
Shizuoka	343,598	702,961
Chiba...	303,574	675,591
Miye	221,879	868,047
Kagoshima	189,111	323,038
Fukushima	183,352	448,212
Kōchi...	159,847	584,702
Ibaragi	108,428	255,177
Others	462,671	1,023,575
Total	1,972,460	4,881,303

Places and output (33rd year) of tunny *Fushi* were as follows:—

	Output (*kwan.*).	Value (*yen*).
Miyagi	49,384	83,502
Ehime	39,470	81,432
Kagoshima	20,475	20,906
Iwate	13,238	17,617
Wakayama	12,322	20,147
Others	29,606	65,206
Total	164,495	288,809

The principal markets of *Fushi* are Tokyo and Ōsaka. The delivery and distribution in the two places were as follows in the 29th year:—

TOKYO.

Imports.				Exports.			
Quantity. *kwan.*	Value. *yen.*	Percentage of delivery.		Quantity. *kwan.*	Value. *yen.*	Percentage of distribution.	
		Kōchi	3%			Tokyo	23.0%
		Kagoshima ...	18%			Gumma ...	10.0%
		Shizuoka ...	14%			Nagano ...	12.9%
						Kanagawa ...	9.5%
						Yamanashi ...	9.5%
						Osaka	9.4%
617,244	1,230,593	Chiba	30%	617,244	1,230,593	Kyoto	5.3%
		Ibaragi	7%			Okayama ...	5.8%
						Nagasaki ...	4.2%
						Hiroshima ...	6.3%
		Miyagi	16%			Miye	2.9%
						Hyogo ...	0.9%
		Iwate	12%			Ōita	0.3%

ŌSAKA.

		Kōchi	25%			Tokyo	10%
		Kagoshima ...	15%			Osaka	25%
		Ehime	10%			Kyoto	15%
		Ōita	5%			Shiga	10%
		Miye	10%			Okayama ...	25%
224,058	454,822	Wakayama ...	10%	724,058	468,490	Hiroshima ...	
						Shimane ...	
						Tottori ...	
		Chiba	25%			Fukushima ...	
		Miyagi ...				Kumamoto ...	
		Iwate				Niigata ...	15%
		Fukushima ...				Toyama ...	
						Ishikawa ...	

GUANO :—The principal centres of fish guano and their output are as follows ;—

HERRING (33rd year).

	Quantity (*kwan.*).	Value (*yen*).
Hokkaidō	5,725,620	1,197,385
Others	24,171	6,947
Total	5,749,791	1,204,332

GUANO (herring and sardine).

	Quantity (*kwan.*).	Value (*yen*).
Hokkaidō	22,936,920	5,806,765
Aomori	1,049,517	328,472
Chiba	876,030	424,254
Aichi	492,483	169,860
Total	25,354,950	6,809,351

DRIED SARDINE.

	Quantity (*kwan.*).	Value (*yen*).
Chiba	2,220,052	554,510
Shizuoka	569,322	30,270
Nagasaki	423,402	95,864
Kanagawa	250,400	429,800
Others...	1,019,842	289,875
Total	4,483,018	1,400,319

The conditions of the delivery and distribution of fish fertilizers in the markets of Tokyo, Ōsaka, and Hyogo were as follows in the 33rd year :—

TOKYO.

Value. *yen.*	Percentage of delivery.		Value. *yen.*	Percentage of distribution.	
2,997,659	Hokkaidō	74%	2,862,845	Tokyo	21.2%
	San-Riku	10%		Chiba	17.7%
	Near shores	16%		Ibaragi, Tochigi Gumma, Miyagi	30.2%
				Nagano, Yamanashi ... Kanagawa, Shizuoka, Aichi, Miye	28.8%
				Others	2.1%

ŌSAKA.

Value. *yen.*	Percentage of delivery.		Value. *yen.*	Percentage of distribution.	
2,546,895	Hokkaidō	91%	2,599,690	Ōsaka	33%
				Wakayama	4%
				Kyoto and Hyogo ...	10%
				Shikoku	3%
	Others	9%		Shiga	47%
				Eastern and western districts	3%

HYOGO.

622,264	Hokkaidō	41%	751,618	Shikoku and others.
	Others	59%		

The market of fish fertilizers has lately gone up to a marked degree owing to the fact that the supply has not kept pace with the demand which went on advancing. This inequilibrium between supply and demand is due to the fact that in consequence of the greater perfection of means of transportation, and the greater facilities of sending raw fish to the market, it is now found more profitable to sell fish as raw fish instead of selling it as fertilizer. To fill the gap thus occasioned in the supply of fish fertilizers a large quantity of bean-cakes from North China has began to arrive in Japan. The following table will show the movement of our fish-fertilizers and of Chinese bean-cakes during the ten years ending the 33rd year :—

	Home-made fish fertilizers.		Chinese bean-cakes.	
Year.	Quantity (*kwam.*).	Value (*yen*).	Quantity (*kwam.*).	Value (*yen*).
24th	34,070,628	4,914,188	4,116,592	350,816
25th	27,060,892	4,529,733	13,139,440	821,215
26th	41,223,382	6,715,672	9,472,480	592,030
27th	45,696,433	7,214,107	8,456,560	816,910
28th	44,679,571	7,403,519	6,668,624	939,948
29th	38,236,862	7,861,932	26,206,048	3,212,931
30th	49,183,932	10,515,196	27,223,760	3,311,712
31st	33,503,946	7,561,334	33,572,128	4,610,625
32nd	38,880,241	9,546,054	41,864,080	6,047,238
33rd	36,380,034	9,662 768	32,101,376	4,540,825
Average ...	38,891,592	7,592,450	20,282,109	2,524,415

DRIED OR SALTED FISH :—The quantity of dried or salted fish going abroad is as yet insignificant, and they may be regarded as being practically all consumed at home. The places where the principal products of this kind are produced and the output thereof are shown below :—

DRIED SARDINE.

	yen.		*yen.*
Miye...	208,852	Ehime	126,628
Aichi	91,024	Others	515,099
Total...			941,603

SALTED SARDINE.

	yen.		*yen.*
Miye...	168,672	Kagoshima ...	79,659
Aichi	164,843	Others	204,088
Total			617,263

SALTED MACKEREL.

	yen.		*yen.*
Kochi	105,221	Chiba	47,337
Fukui	92,661	Others	311,138
Total...			556,357

SALTED SALMON.

	yen.		*yen.*
Hokkaidō... ...	482,000	Others	41,335
Total			523,335

SALTED YELLOW-TAIL.

	yen.		*yen.*
Kagoshima ...	113,444	Toyama	70,500
Kōchi	76,100	Others	173,854
Total			435,898

"TATSUKURI" SARDINE.

	yen.		*yen.*
Miye...	27,641	Ibaragi	26,686
Ishikawa	27,580	Others	195,178
Total...			277,085

BOILED AND DRIED SARDINE.

	yen.		*yen.*
Yamaguchi ...	321,400	Hiroshima ...	245,964
Ehime	298,322	Shizuoka	233,949
Aichi	257,914	Others...	781,229
Total...			2,138,777

DRIED COD.

	yen.		*yen.*
Ishikawa	18,324	Others	11,451
Niigata	102,000		
Total			131,775

SALTED COD.

	yen.		*yen.*
Hokkaidō	43,542	Others	12,109
Total			55,651

SALTED TUNNY.

	yen.		*yen.*
Aomori	16,900	Hokkaidō	12,143
Nagasaki	12,244	Others	37,721
Total			79,008

Sea-weeds:—Of the sea-weeds *Kombu* (Laminaria), and a few others are exported to some extent, but by far the greater part is consumed at home.

"KOMBU" (Laminaria).

	yen.		*yen.*
Hokkaidō	562,234	Others	40,543
Total			602,777

"HOSHINORI" (Porphyra).

	yen.		*yen.*
Tokyo	251,019	Others	262,928
Total			513,947

"TENGUSA" (Gelidium).

	yen.		*yen.*
Tokyo	43,380	Miye	27,082
Shizuoka	40,502	Others	108,691
Hokkaidō	38,650		
Total			258,305

Foreign Trade, (*a*) Exports:—The value of marine products exported during the 34th year amounted to 8,680,000 *yen* approximately. The returns during the last ten years are as follows, the quantity being put in *kin* and the value in *yen*:—

		25th.	26th.	27th.	28th.	29th.
Cuttle fish	Quan.	7,480,039	10,356,998	9,483,425	6,401,207	5,842,458
	Val.	980,307	1,426,781	1,162,453	996,030	1,251,143
Beche de mer	,,	865,152	840,834	929,107	1,021,821	915,753
	,,	291,710	281,524	294,324	316,909	319,520
Sharks' fins		226,316	283,271	297,689	309,549	323,455
		80,845	101,715	102,215	95,880	110,784
Salmon, Cod	,,	1,295,360	1,750,099	1,344,242	1,380,997	705,103
	,,	64,276	85,972	66,121	64,153	40,118
Dried Sardine	,,	715,811	827,656	273,997	507,882	329,293
	,,	23,669	25,256	10,848	18,639	14,919
Dried or salted Fish		782,901	617,048	911,166	993,555	947,905
	,,	24,049	21,352	46,201	30,064	31,554
Prawn	,,	1,427,369	1,404,441	1,283,965	1,535,159	1,356,289
	,,	190,279	204,566	171,781	222,822	209,975
Ear shell	,,	1,101,595	1,021,001	1,165,131	1,060,868	985,073
	,,	381,695	396,209	445,571	396,800	408,043
Mussel	,,	370,288	336,165	218,794	316,832	245,743
	,,	30,429	27,587	21,184	32,890	26,572
Constricta	,,	—	—	—	—	356,613
	,,	—	—	—	—	56,757
Adductor muscle	,	179,224	325,448	541,710	156,913	333,480
	,,	52,087	82,776	127,930	39,833	93,666
Oyster	,,	—	—	—	—	226,700
	,,	—	—	—	—	27,603
Other Shell-fish	,,	—	—	—	—	228,575
	,,	82,000	98,981	70,133	85,887	17,226
Laminaria	,,	36,713,303	32,718,468	35,851,245	39,033,128	29,174,991
	,,	818,841	766,573	467,235	514,275	486,930
Cut Kombu	,,	6,498,297	6,935,038	5,999,134	5,796,883	5,770,338
	,,	175,785	172,847	139,793	116,016	122,655
Rhodophyllis sp.	,,	257,824	225,121	155,240	277,976	183,071
	,,	9,183	9,048	8,035	11,987	10,002
Porphyra Vulgaris	,,	—	—	—	—	—
	,	4,528	6,114	5,227	5,790	9,860
Colle Vegetable	,,	1,269,202	1,452,723	1,298,422	1,118,773	1,403,126
	,,	581,218	682,140	495,625	449,271	995,818
Fish-oil	,	7,357,016	13,751,300	16,668,400	2,654,575	6,175,914
	,	248,621	533,480	668,063	525,045	338,486
Shell (Haliotis)	,	835,861	783,005	767,544	759,762	853,011
	,,	59,104	60,999	50,681	63,018	88,409
Coral	,,	1,419	—	—	1,522	4,354
	,,	37,956	46,062	48,028	36,826	88,971
Salt	,,	16,832,297	19,169,671	16,100,052	24,687,032	25,897,500
	,,	82,386	86,217	68,256	97,464	132,353
Tota	,,	—	—	—	—	—
	,,	4,218,968	5,115,199	4,469,704	4,119,599	4,380,764

Year.		30th.	31st.	22nd.	33rd.	34th.	Average.
Cuttle fish	Quan.	7,093,656	6,046,420	6,390,618	5,191,157	8,798,629	7,308,461
	Val.	1,413,647	1,268,257	1,362,068	1,158,794	1,842,249	1,276,173
Beche de mer		799,842	760,743	945,711	668,391	1,005,635	875,299
	,,	296,623	291,150	362,486	279,355	436,142	316,974
Sharks' fins	,,	347,551	363,017	390,668	360,954	388,219	329,069
	,,	131,004	134,117	146,147	130,499	144,151	117,736
Salmon, Cod	,,	895,172	1,413,829	1,178,892	1,206,955	2,536,184	1,370,683
	,,	56,573	82,613	72,676	87,690	176,019	79,651
Dried Sardine	,,	266,431	273,983	704,813	1,738,913	2,106,941	779,573
	,,	13,649	15,865	35,294	92,218	106,640	135,700
Dried or Salted Fish	,,	461,793	390,062	598,547	807,863	1,857,468	836,834
	,,	18,689	27,429	66,135	73,195	162,468	50,114
Prawn	,,	1,391,256	1,563,687	1,276,414	1,150,049	1,681,522	1,407,015
	,,	215,495	270,541	251,861	232,022	339,653	230,800

		30th.	31st.	32nd.	33rd.	34th.	Average.
Ear shell	Quan.	907,867	1,035,626	1,115,767	856,986	856,901	1,010,085
	Val.	396,630	466,884	530,462	429,926	483,363	433,558
Mussel	,,	165,005	216,103	288,080	320,710	337,700	281,542
	,,	20,339	32,010	46,526	52,759	52,450	34,274
Constricta...	,,	292,635	179,120	99,710	90,821	135,107	115,401
	,,	41,629	28,360	20,018	17,691	26,053	19,051
Adductor muscle	,,	350,057	179,056	298,337	368,181	452,620	318,503
	,,	122,007	69,593	107,397	140,719	204,198	104,021
Oyster	,,	148,708	136,081	136,158	159,742	202,210	100,960
	,,	18,248	21,559	20,363	27,275	39,162	15,361
Other Shell-fish	,,	172,369	187,727	289,452	175,692	265,390	131,920
	,,	17,514	22,606	32,219	27,236	32,364	48,617
Laminaria	,,	40,357,394	33,431,493	39,666,926	30,988,010	51,526,468	36,946,143
	,,	726,896	549,355	780,009	730,844	1,092,923	693,388
Cut Kombu	,,	4,757,660	6,342,328	6,530,520	5,053,001	9,383,262	6,306,649
	,,	104,568	161,936	166,072	152,883	325,404	163,796
Rhodophyllis sp.	,,	95,542	104,010	137,227	137,263	114,031	168,731
	,,	5,678	5,892	6,840	6,263	5,056	7,798
Porphyra Vulgaris ...	,,	—	—	—	—	—	—
	,,	4,735	4,821	13,579	12,189	8,038	7,488
Colle Vegetable	,,	1,326,903	1,205,905	1,207,276	1,444,499	1,584,748	1,331,158
	,,	591,057	611,336	674,435	964,322	1,217,195	686,242
Fish-oil	,,	12,657,231	6,641,274	9,182,780	12,646,954	14,610,195	2,134,764
	,,	618,478	391,721	550,961	906,821	1,023,631	580,531
Shell (Haliotis)	,,	954,117	755,707	798,940	511,747	439,006	745,870
	,,	135,390	172,125	175,957	109,970	100,405	101,606
Coral	,,	10,289	9,186	21,854	30,517	47,053	12,619
	,,	187,155	169,519	345,340	354,699	564,635	187,938
Salt	,,	36,887,927	29,511,592	39,062,239	50,354,304	38,219,760	29,672,218
	,,	300,811	215,703	278,305	452,488	303,627	201,771
Total	,,	—	—	—	—	—	—
	,,	5,436,815	5,013,487	6,045,650	6,439,855	8,685,816	5,392,588

A brief descriptions of principal fish exported will be given in the following paragraphs :—

CUTTLE-FISH :—There are three kinds of cuttle-fish of commercial value, these being *Surume-ika* (Ommastrephidæ), *Kabuto-ika* (Sepia) and *Kensaki-ika* (Loligo). The Sepia is generally used raw, and only the other two varieties, especially Ommastrephidæ are dried. The Sepia lives most in bays or inland seas while the other kinds are caught in Kyūshū, Sado and Oki in the Sea of Japan, and the coast of Aomori, Iwate, Miyagi and Hokkaidō. The dried cuttle-fish goes extensively to China, as shown in the following returns giving the average for the ten years ending the 34th year :—

	kin.	*yen.*
Hongkong	6,044,123	1,071,078
China	1,186,606	190,606
Others	85,538	15,254
Total	7,316,267	1,276,938

Beche de mer :—This is a boiled and dried sea-cucumber and is highly relished by the Chinese. Besides the Japanese product, that caught along the Siberian coast and the South Seas also goes to China. The South Sea variety is whitish and devoid of cutaneous projections, while the Beche de mer from Japan and Siberia is black and has projections. It is found mostly in Hokkaidō and along the north-eastern coast of Honshū.

Average yearly export during the ten years as above was :—

	kin.	*yen.*
China	801,378	292,545
Hongkong	71,491	21,542
Others	2,430	2,883
Total...	875,299	316,970

Sharks' fins :—Dried sharks' fins and tails with the outer skin peeled off are regarded as a dainty by the Chinese. There are two kinds of fins, grey and black, the grey commanding higher price than the other. The fins come in the largest quantities from Oita and Yamaguchi, and our fishermen also cross over to the Korean coast to fish for sharks or rather for their fins :—

	kin.	*yen.*
China	221,149	83,245
Hongkong	107,150	37,440
Others	12,871	7,238
Total	341,170	127,923

Principal Salted or dried fish that go abroad :—These are

SALMON AND TROUT.

	kin.	*yen.*
Hongkong	1,335,741	77,538
China	12,468	609
Other places	24,700	1,712
Total	1,372,909	79,859

TATSUKURI.

	kin.	*yen.*
Hongkong	751,073	34,470
China	20,097	823
Others	10,626	525
Total	781,796	35,818

OTHER SALTED OR DRIED FISH :—Salted or dried fish, mostly in the latter form, that are exported abroad mostly go to Southern China. *Tatsukuri* and cod constitute the bulk of the exports. Other fish of a cheap kind also go there. The recent advance in prices on the fish market stands very much in the way of the greater export of this kind of fish. An attempt is now being made to export salted herring and if this proves satisfactory, salted herring will become an important item of export :—

	kin.	*yen.*
Hongkong	281,444	14,206
China	137,650	8,103
Hawaii	149,921	17,355
United States	17,587	2,336
Korea	237,194	6,771
Others	16,112	1,658
Total	839,908	50,429

DRIED PRAWN :—Two varieties of Penaeus Velutinus Dana. and Penaeus Canaliculatus Olivier. boiled and deprived of their shell are known by the common name of dried prawns. The two kinds are caught along the shores of the Inland Sea and also in Kyūshū. Some tinned prawns prepared here by way of experiment were favorably received at the Cornwall Exhibition, England, and also at the Chicago World's Fair ; but they are not yet exported to any perceptible extent. Dried prawns are mostly destined for China.

	kin.	*yen.*
Hongkong	780,552	128,257
China	590,307	91,503
Others	406,146	3,037
Total...	1,777,005	222,797

EAR-SHELL :—This is one of the most favorite marine products with the Chinese, and the export to America is to supply the demand of the Chinese residents there. An export trade has recently sprung up in tinned ear-shells, but the quantity exported is unknown.

	kin.	*yen.*
Hongkong	885,292	367,629
China	96,414	38,874
United States	24,104	13,991
Others	12,716	104,035
Total	1,018,526	426,976

KAINOHASHIRA :—This is the dried abductor muscle of the several varieties of Pecten shell-fish generally coming from Hokkaidō.

	kin.	*yen.*
Hongkong	158,749	51,056
China	152,141	50,197
Others	7,201	2,782
Total	318,091	104,035

MUSSEL :—This is the dried flesh of the "Seto-gai" caught in Yamaguchi, Ehime, Kumamoto, etc.

	kin.	*yen.*
Hongkong	263,335	32,454
China	199,510	21,211
Others	1,335	3,453
Total	464,180	57,118

HOSHIAGEMAKI (Solecurtus Constricta. Lam) :—This shell-fish grows in the mud of Ariake Sea, Kyūshū. The flesh is boiled and dried.

ARERAGE OF FOUR YEARS FROM THE 31ST TO 34TH YEAR.

	kin.	*yen.*
Hongkong	19,592	3,399
China	106,598	19,632
Total	126,190	23,031

DRIED OYSTER :—The oyster exported in a dried form mostly comes from Akkeshi, Hokkaidō.

AVERAGE, YEARS AS ABOVE.

	kin.	*yen.*
Hongkong	141,266	23,528
British India	6,704	1,245
Hawaii	6,500	1,312
Others	4,035	1,000
Total	158,505	27,085

SHELLS (Haliotis) AVERAGE OF TEN YEARS FROM THE 25TH TO 34TH YEAR.

	kin.	*yen.*
England	255,718	41,694
Hongkong...	281,458	32,637
Germany	109,086	11,810
Others	95,753	8,421
Total	742,015	94,562

YAKO-GAI (Turbo obearins Lam.) 6 YEARS' AVERAGE (25th—30th year.)

	kin.	*yen.*
Hongkong...	44,519	5,081
Others	10,901	138
Total	55,420	5,219

OTHER SHELLS (Average, years as above).

	yen.		*yen.*
Hongkong	6,715	England	1,495
Germany	2,565	Others...	1,093
Total			1,869

Yako-gai grows in the sea surrounding the Loochu Islands. It and the Heliotis shell and Avicula shells supply important materials for ornamental work.

KOMBU (Laminaria):—Several varieties of Laminaria grow on the shores of Japan, especially in Hokkaido and the north-eastern districts of Honshu. The "Long Kombu" (Laminaria augustata) is exported most of all. Kombu cut into small threads is used very much by our people and also to some extent by the Chinese. Shanghai is the principal market, whence the goods are sent to the districts along the Yangtsz. The export to northern China is not so great, owing to the fact that the goods produced in Siberia and Manchuria which is somewhat cheaper than those from Japnn go there.

KOMBU.

10 YEARS' AVERAGE (25th—34th year).

LONG KOMBU.

	kin.	*yen.*
China	34,944,295	658,449
Hongkong	1,484,198	27,137
Others	498,023	5,664
Total	36,926,516	691,250

CUT KOMBU.

	kin.	*yen.*
China	5,873,544	155,671
Hongkong	292,067	6,458
Others	140,891	1,654
Total	6,306,502	163,783

KANTEN, (Colle Vegetable) :—This is made by dissolving the sea-weed *Tengusa* in water. After the refuse is removed the gelatinous infusion is exposed to the cold weather at night and made to congeal. In the daytime this congealed substance is exposed to the sun to make it less watery. Kanten is consumed at home and is also exported abroad. The Chinese use it as food, while in the West it is used as a substitute of isinglass and for starching woven goods or for removing the sediments of liquors. Kanten is produced at Osaka, Kyoto, Hyogo and Nagano.

10 YEARS' AVERAGE (25th—34th year).

	kin.	*yen.*
Hongkong	578,482	292,683
China	543,819	286,140
British India	34,046	19,322
Germany...	18,935	14,147
England	13,214	9,510
Others	88,395	43,000
Total	1,276,891	664,802

Other sea-weeds that go abroad are the *Hoshinori*, *Tosakanori* (Rhodophyllis), *Funori* (Cloiopeltis Agardh) and *Tsunomata* (Chondrus slackhouse, Agardh) ; the first for Japanese staying abroad, the second to China and the other two to other countries to be used as paste :—

HOSHINORI (10 years' average, 25th—34th year).

	yen.		*yen.*
Hongkong	1,593	Hawaii	482
China	4,682	Others...	687
Total			7,444

TOSAKANORI (10 years' average, 25th—34th years).

	kin.	*yen.*
China	164,873	7,505
Others	4,259	291
Total	169,132	7,796

FUNORI (10 years' average, years as above).

	kin.	*yen.*
England	35,445	4,141
Hongkong...	73,399	2,921
Others	950	81
Total	109,794	7,143

TSUNOMATA (10 year's average, years as above).

	kin.	*yen.*
China...	29,337	4,036
Hongkong...	2,749	1,202
Germany	715	499
Others	79	59
Total	32,880	5,796

Fish-oil:—Fish-oil is a by-product of fish guano. It is shipped abroad in the unrefined state, and is used for leathering, making soap, paint, tallow, etc:—

10 YEARS' AVERAGE (25th—34th year).

	kin.	*yen.*
Germany	5,527,476	293,091
Hongkong	1,731,359	95,402
England	1,514,026	61,767
Belgium	622,645	42,908
France	1,001,584	45,169
Australia	297,980	13,489
China	250,618	10,705
Others	419,497	18,665
Total	11,365,185	581,196

Corals:—Corals are got by dredge-nets in the seas off Tosa, Satsuma and Hizen. Italy is the principal foreign market for the

goods. The supply being in excess of the demand lately, owing to the greater development of the work of dredging in Tosa and Satsuma, the market has somewhat declined:—

10 YEARS' AVERAGE (25th—34th year).

	kin.	*yen.*
Hongkong	5,087	83,528
Italy	7,189	80,390
China	655	23,488
Others	10	345
Total	12,941	187,751

TABLE-SALT:—Salt was formely exported to Korea alone, but of late it has began to go to Siberia and Saghalien where it is used for preserving fish:—

10 YEARS' AVERAGE (25th—34th year).

	kin.	*yen.*
Korea	17,719,697	196,618
Siberia...	11,484,059	102,405
Others	467,438	2,747
Total	29,671,194	201,770

FOREIGN TRADE, (*b*) IMPORTS:—Imports of marine products during the ten year from the 25th to 34th year:—

(Quantity is represented in *kin* and value in *yen*).

		25th.	26th.	27th.	28th.	29th.
Dried fish	Quan.	—	—	—	—	—
	Val.	—	—	—	—	—
Salted fish	"	535,268	1,511,962	2,281,632	2,641,254	4,863,137
	"	12,964	44,203	63,197	107,144	231,035
Shell-fish	"	—	—	—	—	113,816
	"	—	—	—	—	30,918
Hank-bill turtle shell ...	"	14,231	13,126	6,935	14,579	14,162
	"	60,160	70,755	46,962	80,798	107,722
Salt	"	—	—	—	—	—
	"	2,442	3,463	5,656	3,245	55,579
"Tengusa"	"	686,583	455,611	319,547	396,443	535,566
	"	29,153	19,990	12,128	16,462	24,669
Coral	"	3,082	4,622	2,108	3,239	5,649
	"	32,807	41,337	24,821	57,650	62,854
"Funori"...	"	954,309	772,073	679,446	673,901	1,064,180
	"	8,831	31,358	27,798	30,360	48,323
Dried sardine	"	5,112,728	8,201,057	10,412,625	432,342	2,682,066
	"	92,293	156,189	193,636	8,561	62,685
Herring guano	"	—	34,231	—	—	—
	"	—	759	—	—	—
Total	"	—	—	—	—	—
	"	270,751	368,054	373,293	304,220	623,684

		30th.	31st.	32nd.	33rd.	34th.	Average.
Dried fish	Quan.	11,957	5,317	43,880	62,873	61,428	18,547
	Val.	455	292	2,292	3,197	3,484	972
Salted fish...	„	9,277,425	10,612,880	23,788,203	43,835,533	30,541,836	1,298,891
	„	495,907	609,736	1,212,896	2,184,946	1,442,790	640,382
Shell-fish	„	92,711	106,942	109,316	116,628	90,403	62,982
	„	26,838	33,365	35,311	43,907	36,343	20,658
Hank-bill turtle shell ...	„	11,478	9,893	7,159	9,744	9,793	11,110
	„	81,203	99,025	68,654	79,527	69,227	76,013
Salt	„	—	—	—	—	—	—
	„	111,823	133,365	86,428	122,384	75,398	59,978
"Tengusa"	„	472,005	679,618	595,052	650,756	658,075	544,924
	„	20,853	29,058	33,517	37,106	38,814	26,175
Coral	„	5,345	7,472	2,726	2,384	1,640	3,826
	„	49,873	103,873	23,803	29,196	12,309	43,252
"Funori"...	„	957,917	969,083	829,133	1,202,543	1,372,232	947,482
	„	47,519	46,139	43,384	63,423	78,443	45,258
Dred sardine	„	12,555,023	5,300,613	2,500,706	6,986,981	7,516,014	6,200,016
	„	288,665	121,282	89,244	235,598	284,970	149,412
Herring guano	„	—	—	17,505,000	26,909,800	28,063,200	7,251,228
	„	—	—	737,157	1,146,116	1,171,626	305,566
Total	„	—	—	—	—	—	—
	„	1,123,136	1,180,135	2,332,686	3,945,300	3,167,407	1,368,867

A brief description of the principal imported marine products will be given in the following pagraphs.

SALTED-FISH :—The most important variety of salted fish imported into Japan is salmon. It comes from Russian Siberia and British Columbia and the United States of America, and generally from the Japanese fishermen who are doing business in those countries to a large extent.

10 YEARS' AVERAGE (25th to 34th year).

	kin.	*yen.*
Russian Siberia...	11,713,498	566,851
United States	410,772	25,902
British Columbia	571,911	35,246
Others...	292,727	12,382
Total	12,988,908	640,381

FISH-GUANO :—Herring guano comes chiefly from Russian Siberia and dried sardine from Korea, both through the hands of Japanese fishermen and merchants. The import was formerly free of duty, but in consequence of the enforcement by the Russian authorities of restrictive measures in regard to the fisheries conducted by Japanese fishermen along the Siberian coast, our Government passed some time ago a law imposing an *ad valorem* duty of not more than 50 per cent. on salted fish and guano coming from Siberia

and Saghalien. The tariff has not yet been enforced owing to the relaxation of the Russian restrictive measure.

FISH-GUANO (3 years' average from 32nd to 34th year).

	kin.	*yen.*
Russian Siberia...	24,159,333	1,018,300

DRIED SARDINE (10 year's average from 25th to 34th year).

	kin.	*yen.*
Korea...	6,056,812	144,204
Russian Siberia...	121,129	4,783
Total	6,177,941	148,987

SEA-WEEDS :—The principal sea-weeds that are imported into Japan come from Korea where our fishermen are collecting *Tengusa* and *Funori.*

"TENGUSA" (10 years' average from 25th to 34th years).

	kin.	*yen.*
Korea...	513,917	24,916
Others	31,007	1,259
Total	544,924	26,175

"FUNORI" (Average of years as above).

	kin.	*yen.*
Korea...	947,074	45,839

SALT :—The import was formerly confined to table-salt alone, but owing to great rise in the salt market recently at home salt has began to come largely from Germany, England, and China :—

Year.	England.	Germany.	China.	United States.	Others.	Total.
	yen.	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*
25th	2,152	30	—	30	230	2,442
26th	2,355	57	—	989	62	3,463
27th	4,773	—	2	813	68	5,656
28th	1,598	—	—	945	702	3,245
29th	2,390	979	49,611	934	1,665	55,579
30th	4,124	18,299	74,841	3,526	11,033	111,823
31st	5,758	87,399	22,016	6,038	12,154	133,365
32nd	2,060	23,660	50,396	2,708	7,604	86,428
33rd	59,725	23,093	18	4,119	35,429	122,384
34th	69,158	3	3,205	3,032	—	75,398

IX. FISHERY LEGISLATURE.

Legislature and institutions pertaining to fishery are as yet comparatively imperfect, as these things have generally been regulated in accordance with ancient usages. This primitive method of regulations having given rise to various troubles the Government put in force from July 35th year the Law of Fishery. At the same times steps were adopted for encouraging deep-sea fishery, and state aids have also been granted for the encouragement of fishery education. The matters will be briefly described below.

Usages and Legislature about fishery:— Various usages have existed about fishery-grounds. In general the grounds in the foreshores of fishing village or villages were regarded to belong to those villages. The inhabitants of farming villages situated along the sea shore did not in general care about the grounds except perhaps to get sea-weeds from them for manure. The grounds in the foreshore of such villages were therefore left to neighbouring fishing communities. With the increase of the fishing population and owing also to the fact that even farmers began to assert their own rights in regard to the foreshores, fishermen were compelled to extend their field to work even to grounds belonging to others, and this very frequently led to trouble. To minimize these troubles the Tokugawa Regency made an enactment in the 2nd year of Kampō (1741) to the effect that the right of fishing and collecting weeds in the space lying within a line stretched from one headland to another should belong to the farmers living along the shores, but that the right of fishing and collecting weeds in the outer space should be exercised in common by the fishermen of all provinces. No fishing community should be allowed to interfer with the collection of weeds by farmers and no farming community should be allowed to interfere with fishing by fishermen. Fishing along the shores should be regulated according to the old usages, but fishing in the open sea should be open even to those who were new to the work.

Certain fees were charged at times for the privilege of the exclusive use of shores, while fishermen eligible for service in the maritime service of the Government were given similar privilege.

This simple regulation established by the Tokugawa Regency was generally adopted by the feudal princes whose domains bordered on the sea.

With the Restoration, the practice of exacting fees was abolished and the seas were declared to belong to the State. In all other respects the Government left the matter to be regulated according to existing usages and customs. Coming to the 19th year the fishery guilds regulations were enacted, but soon this simple legislature proved inadequate to deal with troubles constantly occuring among fishermen, and at last the law in question was promulgated with the consent of the Diet.

ENCOURGEMENT OF DEEP SEA FISHERIES:—The law for the encouragement of deep sea fisheries was issued in the 30th year, and State aids are now granted according to the tonnage of the ships employed in the work and to the number of the crew, provided such ships, whether steamers or sailing ships, engage in specified kinds of fishery approved of by the Government. The development of deep sea fisheries since the enforcement of the law may be inferred from the following table:—

Year.	No. of ships.	Tonnage.	Sum of State aids. *yen.*
31st	1	90	680
32nd	14	1,313	16,240
33rd	17	1,888	25,260
34th	22	2,042	28,035

FISHERY IN KOREAN WATERS:—Our fishermen were engaged in fishery in Korean waters even before the Restoration, and as their number had grown more and more numerous the Government recently made special arrangements in the 16th and 23rd years with the Korean Government to protect them in their pursuing this business there. In the 30th year these fishermen established their own association at Fusan, while in the 33rd year the Government commenced to grant state aids to the guild established by these men.

NO. OF FISHING-BOATS TO KOREAN WATERS AND THEIR CATCH DURING THE TEN YEARS (25th to 34th year.)

(In each set of figures the upper one represents No. of boats and the lower one value of catch in *yen*).

	25th.	26th.	27th.	28th.	29th.	30th.	31st.	32nd.	33rd.	34th.
Osaka	—	—	—	10	11	8	10	8	10	10
	—	—	—	3,000	3,200	3,000	3,800	4,000	4,500	—
Hyogo	—	—	—	5	16	21	42	47	41	38
	—	—	—	1,700	6,495	9,980	13,162	15,790	18,013	31,280
Miye	—	—	—	—	—	—	—	—	—	21
	—	—	—	—	—	—	—	—	—	211,050
Shimane	—	—	—	—	12	12	12	8	18	14
	—	—	—	—	2,099	570	750	230	720	250
Okayama	—	—	—	—	—	—	—	—	144	160
	—	—	—	—	—	—	—	—	2,588	—
Hiroshima	—	—	—	452	410	381	446	561	771	582
	—	—	—	234,092	169,777	105,755	159,695	280,358	326,626	256,222
Yamaguchi	79	97	88	82	85	93	290	490	320	368
	31,690	36,164	39,085	40,990	48,130	50,643	256,033	286,323	343,737	—
Wakayama	—	—	—	—	—	—	—	—	—	11
	—	—	—	—	—	—	—	—	—	4,800
Tokushima	—	—	—	—	—	—	—	51	32	40
	—	—	—	—	—	—	—	11,720	26,914	43,208
Kagawa	237	202	205	251	361	304	316	379	430	446
	52,496	58,382	64,752	71,214	47,993	39,995	48,065	141,697	157,362	109,283
Ehime	12	16	16	32	35	57	92	127	194	166
	7,210	8,710	9,370	26,900	36,600	47,270	66,962	64,500	73,857	79,550
Fukuoka	—	—	—	—	—	—	41	37	43	55
	—	—	—	—	—	—	8,777	7,288	10,694	12,170
Oita	—	—	—	—	—	—	—	—	304	344
	—	—	—	—	—	—	—	—	—	219,166
Saga	—	—	—	—	—	—	—	—	30	68
	—	—	—	—	—	—	—	—	13,118	21,702
Kumamoto	—	—	—	—	—	—	—	23	153	115
	—	—	—	—	—	—	—	12,295	41,853	43,279
Kagoshima	55	58	62	65	70	74	79	91	84	94
	9,683	10,208	11,408	10,465	12,320	13,615	14,536	10,465	19,392	19,850
Total	383	373	371	897	1,000	950	1,328	1,822	2,530	2,532
	101,076	113,464	124,615	388,361	326,614	270,828	571,780	834,566	1,039,379	1,051,810

ENCOURAGEMENT OF FISHERY BY THE LOCAL AND CENTRAL AUTHORITIES:—The extent of encouragement given to the business by the local offices has made striking progress. In the 20th year the disbursements from the local treasury on account of fishery business amounted to only 1,531 *yen* throughout the land. The sum swelled to 360,000 *yen* in the 34th year, as shown in the following table:—

Year.	Fishery expenditure. *yen.*	Year.	Fishery expenditure. *yen.*
20th	1,531	28th	31,593
21st	9,359	29th	50,468
22nd	2,860	30th	62,427
23rd	6,185	31st	71,687
24th	11,011	32nd	108,687
25th	13,475	33rd	188,911
26th	28,861	34th	320,417
27th	19,282	35th	360,043

In the foregoing disbursements the appropriations to fishery experimental laboratories and training schools amount to most, as shown below:—

Year.	Experimental laboratories.		Training schools.		Total.	Expenses. *yen.*
	New.	Already existing.	New.	Already existing.		
27th	1	1	—	—	2	1,175
28th	1	2	—	—	3	2,715
29th	—	2	—	—	2	2,998
30th	—	2	—	—	2	3,779
31st	1	3	2	2	5	12,336
32nd	4	7	—	2	13	34,685
33rd	11	18	2	4	35	144,006
34th	2	20	—	4	26	229,754
35t	4	24	—	4	32	235,643
Total ...	24	79	4	16	123	667,091

The laboratories and schools are allowed to participate in the state aids set apart, as described in the chapter of agricultural education, for encouraging agricultural education:—

STATE AIDS TO FISHERY EDUCATION.

Year.	Fishery laboratories.		Schools.		Total.	
	No.	Aids *yen*.	No.	Aids (*yen*).	No.	Aids (*yen*.)
33rd	7	12,200	1	1,200	8	13,400
34th	18	26,000	4	3 900	22	29,900
35th	21	40,100	4	5,200	25	45,300

Fishery Education:—The progress of fishery education has been very slow compared with that of agriculture and commerce. About the 22nd year a course of fishery was created for the first time in the Agricultural College at Komaba, but it was discontinued shortly after. The Fishery Training School of the Japan Fishery Association did much to diffuse knowledge in regard to this important branch of knowledge among the people, and during the ten years of its existence, for it was converted in the 30th year into a Government institution, it turned out several hundreds of graduates. Of late, in consequence of the encouragement extended to fishery education by the Government, it has attained a striking improvement, as shown in the appended table:—

District.	Fishery schools. No.	Fishery schools. Expenses (*yen*).	Training schools. No.	Training schools. Expenses (*yen*).	State aids (*yen*)
Hokkaidō	—	—	1	833	250
Aomori	—	—	3	2,835	750
Akita	—	—	1	694	150
Iwate	1	3,848	—	—	800
Miyagi	1	4,611	—	—	800
Niigata	—	—	1	830	550
Fukui	1	3,786	—	—	1,000
Shizuoka	1	1,100	2	1,986	700
Kōchi	—	—	3	1,044	300
Tottori	—	—	1	—	—
Nagasaki	—	—	1	1,193	400
Kagoshima ...	—	—	1	840	200
Total	4	15,345	14	10,257	5,900

Associations and public bodies on fishery :—Of the fishery associations and public bodies the Japan Fishery Association and the Japan Salts Association are the most important. The former was organized in the 16th year and contains 5,216 members. It produced, as mentioned above, a large number of graduates in fishery, and in general acts as the headquarters of marine industry of the country. The other body was organized in the 29th year with the special purpose of improving the salt industry. The members number 2,600. Both are publishing monthly proceedings. There are besides fishery societies of local importance, and also fishery guilds and sale guilds created in consequence of the Fishery Law.

Publications on fishery :—The bibliography of fishery makes only a poor show, as it consists principally of official reports. Regular publications are also scanty, they being generally the proceedings mentioned above. Here is the list of some important publications.

Published by the Fishery Bureau.

Report (Preliminary) on Inquiries into Fishery.
Reports on Inquiries into Fishery (Nos. 1—11).
Special Inquiries into Fishery Affairs.
General Outline of Fishery.
Synopsis of Japanese Fishery.
History of Japanese Fishery.
Staple Marine Products for Export (Nos. 102).

Merchant's Vade Mecum as to Marine Products for Food.
Report on Sea Otter and Fur-Seal.
Legal Precedents on Fishery Disputes during the Pre-Restoration Periods.
Report on Pelagic Fishery in the West.
Catalogue of Fishing Gears and Fishing Practices in the West.
Catalogue of Fishery Laws in the West.

PUBLISHED BY THE FISHERY ASSOCIATION.

Treatise on Whaling.
Whaling.
Marine Fauna and Flora of Japan, illustrated.

PRIMARY INDUSTRIES.

MINING AND METALLURGY.

Introduction—Geological Formation and Mineral Deposits—Mining and Metallurgy—Condition of Mine-Workers—Mining Legislation.

I. INTRODUCTION.

As a result of the development in our seaborne trade and also in our railway system and our industries in general, the demand for mineral products has increased apace, and the mining industry has become an important factor of the national economy.

Nothing accurate is known about the origin of our mining industry, but history records that, as early as in the 7th or 8th century, gold, silver, copper, iron, coal, and petroleum were produced. At the beginning of the 9th century, the Ikuno silver-gold mine, Handa silver mine, Hosokura silver-lead mine, and the two copper mines of Yoshioka and Okozawa were opened up. During the 15th century and the time of the Tokugawa Shogunate, many important mines were opened including the gold-siver mines of Sado, Innai, Kamioka, Mozumi, Yamagano, Serigano, and Shikakago; the Kosaka silver-copper mine; the copper mines of Ashio, Besshi, Ani, Arakawa, Hihira, and Omotani; the Ichinokawa antimony mine; the Kuratani silver-lead mine; the Taniyama pewter mine; the Kamaishi iron mine, and the coal mines of Miike, Takashima, and Akaike. The working of these mines was, however, carried on a small scale, and they attracted but little attention, but since the Restoration phenomenal progress has been made in the mining industry.

The Restoration and the introduction of Western civilization has led to remarkable progress in the arts and sciences.

The Government protected and encouraged the mining industry. Foreigners were engaged as mining engineers, geological surveyors, and teachers. At the same time the Government undertook to work the principal mines, where Western methods were adopted in the departments of mining, metallurgy, and conveyance. The idea was to make these mines models for the benefit of private operators. Marked progress has since been made, and the production of minerals has increased in large proportions year by year. Seeing that the private working of mines was becoming pretty extensive, the Government gradually transferred the mines which it was working itself to private exploitation, reserving, however, those which were especially necessary to the State. Moreover, the law relating to mining was instituted to define the right of the mining operator, thus contributing to the progress of that industry.

The putting in practice of the mining regulations in the year 25th swept away all the existing evils and extended a helping and protecting hand to the mining operator. This together with the increase of technical knowledge has led to remarkable progress being made in the mining industry.

II. GEOLOGICAL FORMATION AND MINERAL DEPOSITS.

The geological formation of the Japanese Isles may be briefly described as follows. In the sedimentary formations, those belonging to the Archæan are gneiss and crystalline schist systems, which are distributed over a very limited area amount to about 3.78 per cent. of the total area; those belonging to the Palæozoic are the Triassic, Jurassic, and Cretaceous systems, which form 7.95 per cent.; and those belonging to the Cainozoic are the Tertiary and the Quaternary rocks which form 45.84 per cent. or nearly half of the total area. In the igneous rocks those belonging to the older periods are granite, quartz, diorite, gabbro, diabase, porphyry and porphyrite, which cover 11.27 per cent. The eruption of granite is especially promi-

nent in this formation. Those belonging to the younger periods are andesite, basalt, and liparite, which form 20.92 per cent.

These rock formations appear below in a tabulated form:—

			SEDIMENTARY FORMATIONS.	IGNEOUS ROCKS.
Cainozoic	Quaternary.		Alluvium, Diluvium.	Andesite, Basalt.
	Tertiary		Pliocene, Miocene.	Liparite, Andesite, Basalt.
Mesozoic	Cretaceous		? Mikura Series, ? Misaka Series,	Diorite, Diabase, Porphyrite, Quartz-porphyry, Peridotite, Gabbro, Granite.
			? Senonian,— Mesozoic of Southern Shikoku.	
			? Danian—Gault,— Ammonite Beds of Hokkaidō and Izumi Sandstone Series.	
			Necomian,— Ryoseki Series and Torinosu Limestone.	
	Jurassic		Bathonian of Inferior Oolite,— Tetori Series.	Porphyrite.
			Liassic,— Ammonite bed of Nagato.	
	Priassic		Rhætic,— Plant bed of Yamanoi, Nagato.	Porphyrite.
			Juvaric,— Pseudomonotis Beds.	
			Noric,— Ceratites Beds.	

KOBOTOKE SYSTEM.

Palæozoic	Chichibu System.....	Upper Chichibu Series. (Carboniferous).	Diabase, Porphyrite, Peridotite, Gabbro.
		Lower Chichibu Series. (Mikabu Series).	
Archœan	Crystalline Schist System. (Sambagawa Series.)		Amphibolite, Serpentine Granite.
	Gneiss System.		

The foregoing facts are based on the investigations of the Bureau of Geological Survey. According to the same authority, two-thirds of the Japanese Isles may be said to consist of rocks of the younger periods and igneous rocks. This circumstance has an important bearing on the distribution of minerals in this country.

Wide as is the distribution of useful minerals, it is of course anything but extensive compared with ordinary rocks. The exploitation of minerals, therefore, must be made in rich deposits which can be profitably worked. We need scarcely remind our readers that mineral deposits are created by the mechanical or chemical action of heat or water, and generally exist in the form of beds or veins.

Beds occur in any of the geological ages, but certain beds effect development peculiar to certain strata. In our country the beds of copper-bearing sulphate of iron are especially developed in crystalline schist and Chichibu systems while coalbearing and oil-bearing strata are remarkably developed in the Tertiary formations.

Veins are mineral deposits that fill up crevices in the earth's crust, and in our country they are often met with in the crevices of igneous rocks.

The following is a list of metal mines classified according to their geological ages:—

Those belonging to the Archæan system are: Kamioka and Mozumi silver-lead-copper mines, of Hida province; Besshi copper mine and Ichinokawa antimony mine, of Iyo province; and Yoshioka copper mine, of Bitchu province.

Those belonging to the Palæozoic system are: Hihira and Makimine copper mines, of Hyuga province; Goki copper mine, of Higo province; Kamaishi iron mine, of Rikuchu province; and Nakakosaka iron mine of Kotsuke province.

Those belonging to the Mesozoic system are: Shikano antimony mine, of Suwo province; Dogamura copper mine, of Iwami province; Omotani copper mine, of Echizen province.

Those belonging to the Cainozoic system are: Okozawa copper mine and Kosaka silver-copper mine, of Rikuchu province; Innai silver mine, and Ani and Arakawa copper mines, of Ugo province; Hosokura silver-lead mine, of Rikuzen province; Handa silver mine, of Iwashiro province; Ashio copper mine, of Shimotsuke province; Okoyate copper mine, of Kaga province; Sado gold-silver-copper mine, of Sado; Ikuno gold-silver-copper mine, of Tajima province; Serigano gold-silver mine, of Satsuma province; Yamagano gold-silver mine, of Osumi province.

We will now proceed to briefly describe some of the most important of these mines.

The Besshi copper mine contains a vein occurring in the schistic strata, varying in thickness from 4 to 30 feet, averaging 10 to 20 feet. The ore is copper pyrites containing a great amount of iron pyrites, its average percentage of extraction being 4 to 8 per cent. The Ichinokawa antimony mine is formed of Cretaceous conglomerate consisting of schist and its fragments. There are several veins which run from east to west. The one which is nearly horizontal is called Yokohi and another which is nearly vertical is called Tatehi. They are of irregular width exceeding ten feet at the widest part and a little more than an inch at the narrowest. The length, too, is variable, ranging between 1,300 feet and 2,700 feet. The ore is stibnite.

The Kamaishi iron mine consists of granite and diorite succesively penetrating the Palæozoic strata. There are two deposits; one is about 60 feet wide and about 16,000 feet long, while the other is about 12,000 feet, but, owing to the intervention of eruptive stone, averages only 15 feet in width. The ore is magnetite. Its quality is not uniform but generally from 52 to 61 per cent.

The Sado gold-silver mine consists of tuff and shale of the Tertiary system and pyroxene andesite of the later eruption. There are three principal veins, called Torigoye, Otate, and Aoiwa respectively. Torigoye and Aoiwa are from 5 to 50 feet in width and have a length of about 4,000 feet at the outcrops. Otate is from 2 to 10 feet wide and about 2,500 feet long. The geological quality of the vein is white silica. The Aoiwa vein is richest in gold and silver and the ores are remarkable for their uniformity. The ores from the Otate vein are excellent in quality but lack uniformity, while those from the Torigoye vein are exceptionally variable in quality. The ores produced are native gold and silver, argentite, and copper pyrites.

The Ikuno silver-lead mine comprises four mining concessions, those of Tasei, Kanagase, Nakabayashi, and Kamori. The Tasei is mostly formed of liparite and porphyrite.

The principal veins are Tasei Mayehi (15 feet wide, and 5,000 feet long), Tasei Okuhi (10 feet wide and 2,000 feet long), and

Sennihi (5 feet wide and 500 feet long). The principal ore is argentite, which bears gold more or less. The Kanagase consists of liparite and its tuff. There are several rock veins interveining between the ore deposits. The principal veins are Honhi, Otobushihi, and Mayehi. The Honhi consists of copper ore but its northern part appears to have been converted into silver ore. The length of this vein exceeds 10,000 feet and it attains a width of nine feet at the widest part. The principal ores are bornite and copper pyrites. The Otobu-hihi and Mayehi are silver veins attaining a length of 2,000 feet. The principal ores are native silver, argentite, and sulphate of iron. The geology of the Nakabayashi concession is similar to that of Kanagase, consisting of an argentiferous copper and galena. It is 3 feet wide and 10 feet long. The principal ores are copper pyrite, bornite, and tetrahedrite. Galena is rarely produced. The Kasei concession consists of diorite with occasional intervention of liparite and porphyrite. The vein is from 6 to 20 feet wide and 8,000 feet long. The principal ore is auriferous argentite, containing copper pyrites more or less. Native silver and plyrargyrite are also produced, though rarely.

The Innai copper mine and its vicinity consist, in the sedimentary rocks, of the Tertiary and diluvial strata and, in the igneous rocks, of porphyrite, vitro andesite, and pyroxene andesite. The veins are imbedded in the porphyrite. The principal veins are Motohi, Atsumihi, Usumihi, and Gorojohi, the three of which are branched off from the Honhi. The Honhi is from 2 to 18 feet, and rarely more than 30 feet, wide. The principal ores are argentite and stephanite, occasionally with copper pyrites and rarely with pyrargyrite. This mine is the richest copper mine in Japan.

The Ashio copper mine and its vicinity is formed of the Palæozoic strata, penetrated by a series of liparite, and the veins are found in this liparite. There are thirty veins and more, some striking from south-west to north-east and others from east to west. The former kind is represented by the Yokomabu and is rich in ores, the latter kind is represented by Shinseihi and is much inferior in the quality of ores. The width of the veins are: Yokomabuhi 20 feet, Yasubeihi 33 feet, and Shinseihi 6 feet. The principal ore product is rich copper pyrites with mixture of various quantities of iron pyrites, galena, and arsenopyrite.

Gold sand is a drift of gold particles separated from rock fragments, which in turn was detached from auriferous beds. The gold sand of the Esashi district, the well-known gold sand region in Kitami province, Hokkaidō, originated in the quartz vein of the Mesozoic period. The output of gold sand last year (1901) was 142 *kwan* 420 *momme.*

Iron sand is a deposit of iron ore created by the decomposition of parental rocks in the igneous rock. The parental rocks in the middle district of Honshū, where iron dust is most productive, are granite, diorite and igneous rocks. The output for last year was as follows:—

Prefectures.	*kwan.*	Prefectures.	*kwan.*
Shimane... ...	2,882,929	Hiroshima ...	1,892,756
Tottori	2,121,545	Okayama ...	119,120

Names of Mines.	Names of Provinces.	Gold.	Silver.	Copper.	Lead.
Sado...	Sado...	97,361	1,377,585	58,543	—
Ikuno	Tajima	41,180	1,148,036	693,261	—
Hashidate ...	Echigo	27,357	—	—	—
Yamagano ...	Ōsumi	18,576	12,384	—	—
Innai	Ugo	17,080	2,129,933	—	—
Kuratani	Kaga	17,046	303,881	—	212,580
Kosaka	Rikuchū	1,203	999,207	2,984,253	—
Ponzenbetsu ...	Shiribeshi ...	8,381	957,219	—	—
Kamioka	Hida	—	921,773	28,200	1,006,342
Tsubaki	Ugo	—	893,900	—	—
Hosokura ...	Rikuchū	—	510,623	4,610	1,240,431
Handa	Iwashiro	6,726	417,597	—	—
Ashio	Shimotsuke ...	—	—	10,640,104	—
Besshi	Iyo	—	—	7,728,800	—
Ani	Ugo	1,110	325	1,834,169	—
Osarizawa ...	Rikuchū	1,722	347	1,584,961	—
Arakawa	Ugo	—	—	1,391,332	—
Hihira	Hyūga	—	—	1,333,107	—
Obiye	Bitchu	—	—	1,006,691	—
Mikura Hisanichi	Ugo	—	192,382	944,075	—
Makimine ...	Hyūga	—	—	867,942	—
Yoshioka... ...	Bitchu	—	179,903	863,810	—
Hirakane... ...	Hida	—	307,680	701,641	—

		Iron.	Antmony.	Manganese.
Kamaishi...	Rikuchuū...	4,237,420	—	—
Ichinokawa	Iyo	—	413,039 65,959	—
Shikano	Suwo	—	321,199	—
Ribetsu	Shiribeshi	—	—	4,541,875
Iwazaki	Mutsu	—	—	3,592,500

None of the coal seams in the country do not occur in the Carboniferous system, which is known as the chief coal producing formation in Europe and America. It may be conjectured that the older strata belonging to the Carboniferous system were then sunk beneath the ocean, and no vegetation existed to supply material for the formation of a coal bed.

The oldest coal-bearing strata in this country are in the rocks of the Mesozoic era. The anthracite coal-field extending over the three districts of Mine, Hirose, and Toyora in the province of Nagato, another anthracite coal-field in Amakusa district in the province of Higo, and the coal-field in Higashi-muro district in the province of Kii are the representatives.

In a latter geological formation, the coal seams show a remarkable development. The principal coal-fields belonging to this class are those in Kyūshū and Hokkaidō, and also those in the Joban district.

The Kyūshū coal-fields comprise the extensive coal-fields of Chikuhō, Miike, and Hizen.

The Chikuhō coal-field extends over Kaho, Kurate, Onga, Munagata, and Kasuya districts in the province of Hizen and Togawa and Kuki in the province of Buzen, and embraces a very large area. In the valley of the Onga river, which stretches over the four districts of Togawa, Kaho, Kurate, and Onga, there are more than ten coal seams, of which the three-and five-feet seams are generally workable. The coals from these seams are bituminous and of good quality, many of them well adapted for making coke.

The Miike coal-field extends over Miike district in Chikugo province and Tamana district in Higo province, and covers a very large area. There are eight seams, of which the eight-and six-feet seams are workable. The so-called Miike coal is the name given to the coal from this eight-feet seam, which averages 9 feet in thickness, measuring 25 feet at the thickest part. The coal is of excellent quality, somewhat brownish in color, highly bituminous, and possessing high calorific power. It is highly esteemed for use in marine boilers and for making coke.

The Hizen coal-fields are those lying scattered in the districts of Nishikizuki, Kitamatsura, Nishimatsura, Higashimatsura, and Kijima. The coal from those fields is remarkably good in quality, being only inferior to Cardiff coal. Of the coal-fields the most productive is that lies in and near Takashima in Nishikizuki

district. There are more than ten seams, of which the five seams, namely, 8-feet, Goma 5-feet, Iwato 5-feet, 18-feet, and 3-feet, are workable.

The Hokkaidō coal-field includes the Soya, Teshio, Kushiro and Ishikari coal-fields, of which the last-named is the largest and produces the best coal. This area borders on the Sorachi river in the north and on the Yubari river in the south and embraces the four coal-measures of Yubari, Sorachi, Horonai, and Ikushunbetsu. Of the coals from these measures that from the Yubari measures has the best quality of all. Three seams occur in this measure, one of which has the thickness of 25 feet including more or less partings, and the other two are four feet thick. The coal is hard and has great heating power.

The Joban coal-field extends over Taga district in the province of Hitachi and Ishiki and Yataba districts in the province of Iwaki, covering an extensive area of land. The coal in the Hakusui district is the best. There are two workable coal seams, 3-ft. and 6-ft. Below are given the names of collieries that produced more than 100,000 tons in the 34th year and an analytical table showing the composition of some of the principal coals:—

Mines.	Coalfields.	Provinces.	Output. Tons.
Kashinai	Ishikari	Ishikari	187,918
Horonai		,, ...	168,931
Iriyama	Joban	Iwaki	140,515
Onoda		,, ...	128,397
Miike	Miike	Chikugo ...	905,738
Otsuji	Chikuhō	Chikuzen ...	238,211
Mannoura ...		,, ...	115,490
Shinyu		,, ...	343,854
Oura		,, ...	282,988
Namazuta ...		,, ...	202,271
Meiji		,, ...	288,659
Tadakuma ...		,, ...	100,095
Yamano		,, ...	116,473
Komatsu... ...		Buzen	172,370
Mineji		,, ...	110,075
Hokoku		,, ...	147,606
Tagawa		,, ...	179,406
Kanada		,, ...	124,337
Ita		,, ...	133,021
Akaike		,, ...	185,059
Yoshinotani ...	Hizen	Hizen	109,111
Takashima ...		,, ...	171,699

Coal-field.	Names of Coals.	Water.	Volatile Matter.	Coke.	Ash.
Chikuhō	Shinnyū 3-ft.	3.41	42 76	48.46	5.31
„	Akaike 5-ft.	2.64	43.99	50.44	2.93
„	Namazuta "chirimen" ...	1.66	42.50	52.68	3.16
„	Miike 8-ft.	0.70	42.15	48.85	3.30
Hizen	Takashima	0.98	39.08	53.42	6.53
Ishikari	Yūbari	2.46	42.89	57.11	4.57
„	Poronai...	5.09	42.19	48.80	3 92
Joban	Shiramizu	5.06	44.36	40.81	8.75

Localities.	Names of Coals.	Sulphur.	Caking Qualities.	Sp. Gravity.	Calorific Power.
Chikuhō ...	Shinnyū 3-ft.	0.22	Cakes pretty compactly	1.311	—
„ ...	Akaike 5-ft.	0.41	Cakes & swells	1.275	75.90
„ ...	Namazuta "chirimen"	0.81	„	1.298	75.90
„ ...	Miike 8-ft...	3.34	„	1.278	—
Hizen... ...	Takashima	0.65	„	1.270	80.30
Ishikari ...	Yūbari	0.31	Cakes	1.200	—
„ ...	Poronai	0.25	Cakes compactly ...	1.306	—
Tokiwa ...	Shiramizu...	1.39	Does not cake.... ...	1.304	—

It appears that petroleum exists in any of the stratum or system, but the oil-bearing strata in this country are confined to the Tertiary, and they consist of sandstone and shale. The area is very extensive stretching over Hokkaidō, O-U district, and the provinces of Echigo, Shinano, and Tōtōmi in the north, and reaching as far as Kyūshū in the south; but the principal seat of production is Echigo and next in importance is the oil-field of Tōtōmi. The rest are still insignificant.

The principal oil-fields of Echigo are Higashiyama, Nishiyama, Amase, Aratsu, and Kubiki, of which the first two are the most important. They are both situated in the middle part of the province.

The principal seats of production in the Higashiyama oil-field are Amase, Hire, and Katsuhozawa. The oil-bearing strata is generally found from 60 to 160 *ken* below ground. They consist of white sandstone bearing a large quantity of quartz. When the stratum is of coarse sandstone it is rich and when it is hard or consists of shale, it is poorer, in oil.

The Nishiyama oil-field contains two principal veins, namely, Nogamine and Kamada. The oil-bearing strata are formed of a rock with alternate layers of shale and sandstone, and generally lie about 100 *ken* deep in the ground.

The yield of oil at Higashiyama and Nishiyama in the year 34th was as follows:—

	sho.		*sho.*
Higashiyama ...	267,972,33	Nishiyama...	589,693,61

Sulphur is found in the district formed of volcanic rock. Below is given the names of the mines that produced more than two million *kin* in the 34th together with the amount of production:—

Provinces.	Mines.	Output.
Ugo and Rikuchū	Tsurugizan	5,652,864
Rikuchū	Kiridomehira... ...	2,835,408
Shiribeshi...	Iwaonori...	3,199,199

III. MINING AND METALLURGY.

Before the Restoration the methods of mining and metallurgy were in a rudimentary stage: there was no such thing as a scientific system, experience or what would be called, in more familiar language "the rule of thumb" being the sole guidance.

In mining there were no other instruments used but a small wedge and a hammer. The drift was generally driven on the side of a mountain or in a valley. Ores were mined from an outcrop and along the vein. The mine roads were winding and so narrow that a single person can only walk with difficulty. They were supported by small timbers to prevent the collapse of the roof and sides. To facilitate ascending and descending serrated timbers were used as ladders. Owing to this state of affairs transportation, ventilation and drainage were conducted in a very defective way. For carriers little children were employed who carried out of the mine small quantities of ore in baskets. Added to the narrowness of the mine roads there were no efficient provisions for effecting ventilation, and occasionally the air became so foul owing to the open fires and by the use of naked lights that the lights went out, but the miners, ignorant of this warning that danger was at hand, continued his work in the darkness. No wonder miners in those days rarely attained the age of 25. The drainage was

also very inefficient. A small ditch was cut on either side of a mine road to assist the natural flow of water; and when at a great depth water was transmitted from one vessel to another by means of pumps made of bamboo or some other kind of wood until it was drained out of the mine. Sometimes buckets were used, and rarely was an aqueduct constructed for drainage purposes. With such inefficient provisions as these it is not to be wondered at that a slight increase in the influx of water flooded the mine and caused the work to be abandoned permanently. Under such disadvantages, however, the miners of old succeeded in reaching a depth of more than 1000 feet and in extending their operations over an area of several miles. The present day miners often wonder at the old mines which they came across from time to time, the digging of which must have costed the old day miners an almost incredible amount of labor.

Milling was carried on by women and old men, who broke the ore and picked by hand. In the case of gold and silver ores, they were first pulverized with an iron mallet and a stone mortar and then made to flow in launders down a rude concentrating flume-like apparatus named *neko*, in a stream of water.

In metallurgy the selected ores of either gold, silver, copper, or lead were put into a stone furnace and calcined with fuel. The calcined ore was next put into a "u" shaped furnace made in the ground and melted by applying bellows. In case of gold and silver ores, a proper quantity of lead was added and argentiferous lead was formed, which separated by smelting in another furnace. Copper ore containing gold and silver was amalgamated with lead and the argentiferous lead was separated from the copper by a smelting popularly called *namban-buki*. The matte was then separated as before. Copper was generally first roasted and then the calcined ore is put into a furnace for fusion over a charcoal fire. When the ore was melted down, the slag was removed and the molten matter was either cooled by pouring water on it or directly subjected to disilverization by a process known as *mabuki*. The matter produced by the

last operation was again calcined. The roasted matter was removed to a hearth furnace and was melted. If there was still any slag left the molten matte was again allowed to settle and if there was no impurities then it called black copper.

Such is a general description of the old methods of mining and smelting. Owing to the inefficiency of these methods, no small quantity of metal was wasted during the operations. To such an extent, indeed, was this the case that the ores and slags thrown away as useless by ancient metallurgists are now reduced with no small profit.

The Restoration inaugurated an important epoch in the annals of the mining industry in this country. In the latter days of the Shogunate Government, that is in the year 1867, an Englishman named Erasmus Gower introduced for the first time in this country the use of explosives which he employed in the silver-gold mine in Sado. An American named Pumpelly also used an explosive at the Yurap lead mine in Hokkaidō. These are the first instances of the employment of explosives in the mining business in this country. In the first year of Meiji (1868), Kanso Nabeshima, feudal lord of Saga, in conjunction with an Englishman named Glover, sunk a European shaft at Takashima. This was the first shaft ever sunk in Japan.

On the advent of the Meiji era, the Government undertook the mining business itself and placed the Sado, Ikuno, Muoi, Ani, Kosaka, Kamaishi, and Okuzu metal mines as well as the Takashima and Miike collieries under its direct control. Foreigners were employed and improvements in various directions were effected. Foreign systems were adopted in mining, smelting, and transportation, and an example was set to private mining companies. At the same time, that is in 1871, an engineering school was established for diffusing a knowldge of mining and metallurgy. The result was a remarkable advance in these departments of scientific learning. The conspicuous features of the advancement are as follows :—

1. Introduction of the use of gunpowder in breaking rocks.

2. Introduction of shafts and levels.
3. Introduction of the stoking, pillar working, and long wall working.
3. Introduction of masonry and brick work as substitutes for mine timbers.
5. Introduction of boring machines for prospecting.
6. Introduction of such machinery as the winding machinery, the ventilator, the rock drill, the trammel, and the picking band.
7. Introduction of the truck railway.
8. Introduction of the utilization of horse, water, and steam for mining.
9. Introduction of metal essaying.
10. Introduction of the blast furnace and reverbratory furnace.
11. Introduction of amalgamation and lixiviation processes of smelting.

Henceforth a large number of private operators imitated the Government's enterprises. Although their undertakings were not invariably successful, the result was a remarkable development of the mining industry in general.

At this time, the most noticeable phenomenon was the activity of the petroleum industry. The sinking of wells was at first made by manual labour, but since the Japan Petroleum Joint-Stock Company introduced American oil-well boring machines with success in the 23rd big strides have been made in the right direction, that is, of course, in the employment of machinery. Oil was formerly transported on men's shoulders, but a great improvement was effected, in the 11th year by the introduction of iron pipes.

The mining industry was now in a fair way and there was little or no necessity for retaining the model mines; at least the Government seems to have taken this view of the matter, for it opened the mines under their control to private enterprise. The private operators, now backed by adequate experience and scientific knowledge, contributed much to the further development of the mining industry. The changes for the better since then effected are summarised below:—

1. The adoption of the rock drill with compressed air as motive power.
2. The use of dynamite and other powerful explosives was extended.
3. The wire-rope tramway was first constructed.
4. The hydraulic pumps and other new types of pumps adopted.
5. The automatic hauling machine adopted.
6. The Huntington mill, Frue vanner, and Duncan concentrator adopted.
7. The water jacket furnace adopted.
8. Electricity applied for driving machinery and to the refining of crude copper.
9. The Besemer, Augustin, Patera, Kiss, Russel, Oker process of refining adopted.
10. Boilers, engines, and turbines of new types adopted.

The Mineral Sands Industry:—The gathering of iron sand has from old times been carried on a fairly large scale in Chūgoku, especially in Shimane, Tottori, and Hiroshima prefectures, but the gathering of gold sand is of recent origin, dating only from the discovery of alluvial gold in the Esashi district of Hokkaidō in recent times.

There are three old methods of gathering gold sand, which are still in use,—namely, *nagashibori*, *okabori*, and *karasubori*. The method termed *okenagashi*, which was introduced in Hokkaidō by a certain American not long ago, is increasing in favor. These methods have been more or less improved on but nothing remarkable has yet been effected.

The *nagashibori* method may be described as follows: A dam is constructed half way across a stream and a lock is constructed with stones found in that portion of the stream which is made dry. The sand is allowed to flow through this lock down a cradle which is placed at an inclination of from 8 to 10 degrees. The gold dust precipitated is removed to a concentrating board and is purified.

The *okabori* method is as follows: Pebbles supposed to be rich in gold are taken to a *neko* concentrating ground, and washed in a

basket called *ebizaru* over the *neko*. The smaller pebbles fall on the *neko* while the bigger lumps remaining in the basket are examined and thrown away if worthless. What is accumulated on the *neko* is transferred to the concentrating board and are dressed similar to the *nagashibori* method. In the *karasubori* method, either big stones are turned with a lever or the sand is tilled with a pick. The sand at the bottom is stirred up to fascilitate the discovery of gold sand. A box with a glass bottom is put on the water and when the presence of such is ascertained it is gathered by bird's lime.

In the *hinagashi* method, a stream is dammed and the bed is made dry, and the sand found there is concentrated by a trough with a riffle. When the sufficient quantity is accumulated, the flow of water in the trough is slackened and a quantity of quick silver is put into the upper part of the trough. The riffle is then raised and the sand contained therein is stirred up with a hoe. The gold sand is allowed to precipitate and then amalgamated with silver, which is afterward distilled and gold is thus obtained.

In gathering iron sand, rocks containing them are crushed and washed and concentrated by a running water. The iron sand precipitates and is gradually purified.

The method of smelting iron sand in ancient times appears to be as follows: The iron sand was piled up and then roosted with fuel, forming iron lumps. They were then calcined in a furnace made of clay. At present iron sand is put into a blast furnace and charcoal is added to it. Blasts are sent by bellows from both sides of the furnace and the iron sand is melted. That portion which flows out of the furnace is pig iron, and that remaining in the furnace is "matte." The "matte" is cooled down and crushed to facilitate concentration. The best and hard portion forms steel. To obtain wrought iron, the pig iron and matte are mixed together and melted with charcoal fire, and when melted to a proper degree, are hammered on an anvil.

IV. CONDITION OF MINE WORKERS.

The total number of persons employed in the Japanese mine was 154,780 in June, 34th. These include miners, carriers, pickers smelting men, machine tenders, iron workers, and pumpmen. Most of these laborers work underground and under uncomfortable circumstances, but in spite of these disadvantages they are generally satisfied with their lot and go to work with light hearts. Some of these workers are natives of the district in which the mine is situated but the greater number of them are from other provinces, no small number of whom settle down, form families, and live till their death. These mine workers generally live in dwellings provided by their employers; those with families in separate rooms and those without families in large common rooms. The dwellings are either thatched or tile-roofed, and the inside of the rooms is comparatively clean, which reflects much credit on them. When mines are remote, provisions are supplied by the mine operators, sometimes at a very low price. Evidently this institution of a cheap supply of food is adopted with a view to checking any movement for the rise of wages on the pretext of a rise in the price of commodities, for it is very difficult to lower wages when once they are raised. These workmen look very miserable in their working dress but, after they have changed their clothes, they seem to be quite different men.

As their calling is attended with some peril, their wages are on a higher scale than those of their confrères in the other walks of life. Their wages are generally 47 *sen* for men and 24½ *sen* for women. Children under 14 years of age are paid: Boys 17½ *sen* and girls 11⅗ *sen*. These are sufficient to cover the expenses for their daily wants.

In case of accidents while on duty, their employers are bound to take care of them. The employers bear part or the whole of expenses of medical attendance, and, when the patients are treated in hospitals other than those owned by the employers, they are daily paid a sum of money to meet the expenses of such hospitals. In case of their being disabled, they are given a fair amount of money, and in case of death, generally a sum of five *yen* or upwards is granted to the bereaved families to cover funeral expenses. Below is given a table

showing the sums paid, during the three years specified, by some of the mine-owners, under the circumstances already given :—

FUNERAL EXPENSES.

Year.	Miike.		Besshi.		Ikuno.		Innai.	
	No. of recipients.	Amount in *yen*.	No. of recipients.	Amount in *yen*.	No. of recipients.	Amount in *yen*.	No. of recipients.	Amount in *yen*.
32nd	15	73.000	2	24.000	45	251.000	2	9.000
33rd	9	45.000	1	80.000	39	197.500	3	15.000
34th	25	125.000	5	41.942	42	166.500	2	10.000
MONEY GIVEN IN AID OF THE BEREAVED FAMILIES.								
32nd	14	560.000	—	—	138	796.100	2	29.000
33rd	9	360.000	—	—	164	957.800	3	67.200
34th	21	820.000	2	40.000	185	1,096.800	2	54.830
MONEY GIVEN IN RELIEF OF THE DISABLED.								
32nd	8	100.000	—	—	42	891.500	—	—
33rd	13	135.000	—	—	49	1,043.000	—	—
34th	2	60.000	—	—	50	1,143.000	1	14.440

FUNERAL EXPENSES.

Year.	Kamaishi.		Ashio.		Sado.		Yubari, Horonai, Ikushumbetsu, Kashinai, etc.	
	No. of recipients.	Amount in *yen*.	No. of recipients.	Amount in *yen*.	No. of recipients.	Amount in *yen*.	No of recipients.	Amount in *yen*.
32nd	—	—	7	58.000	5	24.000	33	330.000
33rd	14	70.000	16	119.000	1	5.000	21	210.000
34th	6	39.950	15	127.000	1	5.000	40	400.000
MONEY GIVEN IN AID OF THE BEREAVED FAMILIES.								
32nd	—	—	6	100.000	4	150.000	29	890.000
33rd	13	148.000	15	355.000	1	30.000	21	840.000
34th	7	140.000	16	330.000	—	—	37	1,480.000
MONEY GIVEN IN RELIEF OF THE DISABLED.								
32nd	—	—	3	60.000	—	—	21	708.000
33rd	—	—	2	50.000	—	—	13	387.000
34th	2	108.970	3	53.000	—	—	16	398.000

In respectable mines, mine workers' mutual aid associations are in existence. The aim of these associations is to extend help to the members in case of emergency. To this end, reserve funds are created by contribution from the members, and also from the mine operators or other patrons, and disbursements are made from these

funds in case of the injury, illness, or death of any of the members. The sums to be contributed by the mine workers vary according to different associations. In some cases, a certain fixed sum is contributed uniformly by all, while in other cases, sums are contributed in proportion to the positions of the workmen. Such contributions are made every month out of their income. In granting the relief, the amount to be given is fixed, other things being equal, according to the length of time the party to be relieved has been a member of the association, or according to the position of the recipient, or according to both.

Education of mine workers:—Although in petty mines where only a small number of workmen are employed no provision is made for the education of the miners' children, in larger mines they are educated either in schools established by the mine owners or in public schools subsidized by the mine owners. Under such circumstance, the rate of tuition fee is comparatively low.

Character of mine workers:—When seen in the dim light of the underground workings, mine workers appear to be of fierce and vicious characters but they are meek and obedient nevertheless. But among those who are termed itinerant miners, who are constantly moving from mine to mine, there are occasionally found blood-thirsty rogues and ruffians.

Mutual relations of miners:—Peculiar usage exists among miners. The oaths of chiefs and protégés and of bretheren are observed with religious strictness. The instructions of the "boss" are expected to be obeyed whether they are right or wrong. These chiefs are in intimate communication with each other, so that in case a miner goes from one mine to another, seeking employment, etc., he is sure, if he gives the name of his chief, to be kindly treated. His new friends will go to no little trouble to find employment for him and will often give him money to cover his travelling expenses. This peculiar spirit of fraternity is utilized for the control of miners; and it is difficult for the outsider to realize how implicitly the commands of these chiefs are obeyed and how well order is preserved. But this sympathy between the chief and the followers sometimes aggravates a fight between chiefs themselves and often brings about tragic incidents. Sometimes these retainers of a "boss" cause trouble to the

latter's employers. Under such circumstances one would suppose that strikes are of frequent occurrence. This is not the case, however. Strikes of miners are almost unheard of although fights among them are sometimes reported. This absence of strikes is ascribed to the judicious management of the managers of mines.

V. LEGISLATIVE MEASURES.

Right of Ownership :—There are, generally speaking, three kinds of right of ownership as to mines, these being the system of accession, that is to say, the system of ownership by private individuals ; (2) the domanical system, that is to say, the system of State ownership ; (3) the system of concession, that is to say, the system of giving concession on application.

The first system is the recognition of the right of ownership of land to the fullest extent for it is based on the theory that the right of ownership of land covers all objects contained in the land whether lying on the surface or below it. Japan has never adopted the first system; it adhered to the State ownership system from former times and till quite recently, so that when the privilege of working a mine was granted to any private people, this concession was regard as favor of the Government, and for a certain limited period in return for payment of royalty. The period as mentioned in the Mining Regulations issued in the 6th year was 15 years.

The progress of the times did not allow the continuation of such arbitrary system, which was moreover calculated to seriously impair the advance of the mining industry. In the 23rd year the Mining Regulations were amended, and with the operation of the new Regulations two years later the concession system was inaugurated, and thus marked a new era in the history of the mining industry in Japan.

Scope of mining work :—In Japan trial boring and smelting are included in mining work, in contrast to the usage prevailing in other countries. The inclusion of the work of smelting to mining work proper is simply the result of custom and is due

to some extent to the convenience it affords to Government overseers, owing to the fact that boring and smelting have in most cases been combined in Japan and the division of the two is therefore judged troublesome. Moreover the bringing of trial boring and smelting under the same treatment as mining are judged to tend to encouraging the mining industry.

KINDS OF MINERALS :—Mineral ores as recognized in law are as follows :—

Gold (sand-gold excluded), silver, copper, lead, tin (sand-tin excluded), antimony, quicksilver, zinc, iron (sand-iron excluded) hematite, manganese, arsenic, plumbago, coals, kerosene, sulphur, bismuth, *cloral-iron*, phosphorus, peat, and asphalt. The last five were added to the list in the 23rd year.

QUALIFICATION OF MINING CONCESSIONAIRES :—At first a foreigner was disqualified from working a mine and was further prevented from becoming a member of a mining establishment, so that the right of working mines was solely reserved for Japanese subjects. In consequence of the amendment of the Mining Regulations in the 33rd year a business establishment organized by Japanese or foreigners or by both combined is allowed to work mines, provided such establishment is placed under Japanese laws. This amendment has encouraged the creation of mining establishments organized by foreigners, and has therefore proved a means of stimulating the development of the industry.

TRIAL BORING :—Differing from the examples seen in many Western countries, Japanese law does not recognize in the matter of trial extraction the right of priority of discoveries; the right of trial boring is granted to the one who has first applied for it. The reason why this system has been adopted in Japan is because the fact of an alleged discovery is exceedingly difficult to verify, while an accidental discovery has no right to claim any special privilege. The concession of trial boring carries with it a great privilege in Japan for no person is allowed to apply for the trial boring in the concession conceded to the first applicant of the same metal as that for which the concession was made to that applicant.

The non-recognization of the right of priority of the owner of land in which a discovery is made is derived from the fundamental principle of Japanese legislature. The period of trial boring is one year to be extended to another year when such extension is regarded proper and necessary (Art. IX.). In contrast to this limitation in the period of the trial boring, no such limit is enforced in regard to permanent borings. Further, though the right of trial boring can not be transferred to a third person or be used as object of hypothecation, the right of permanent boring can be sold or bought or assigned or be made an object of hypothecation (Art. XX.)

However the law was highly inconvenient at first, and did seriously interfer with the proper development of the industry, inasmuch as the concession of working a mine was limited to the space of only 15 years, while this concession was forbidden from being made use of as object of hypothecation. The subsequent amendment has removed these two grave defects and to-day concessionaires and capitalists are enabled to invest a large sum in the exploitation of mines.

Scope of a mining concessions :—The scope of a concession is fixed within a definite limit, it being 10,000 to 600,000 *tsubo* for coal and 3,000 to 600,000 *tsubo* for other kinds of minerals (Art XLI.) The two extremes in both cases have been so determined in order to prevent the appearance of too many small concessions on the one hand and of a limited number of too large concessions on the other. However, in case of the combination of more than two concessions the maximum limit may exceed 600,000 *tsubo*.

Supervision on the Working :—In a country where the knowledge possessed on mining matters is extensive and where the mine-owners themselves are thoroughly up-to-date in every way, there is no need for the government to interfere with the working of mines. But this remark can not yet apply to Japan ; on the contrary our mine-owners and people are too apt to attend to their own immediate interests at the expenese of the permanent interest of the mining industry as a national economy. Not unfrequently they secure concessions merely with the object of selling them to other people. All these things

oblige the Government to interfere more or less with the mining business. Thus a concessionaire is obliged to forward to the chief of the Mining Inspection Office in whose jurisdiction the concession is situated the working plan he has drawn up and to obtain for it the approval of the chief before proceeding to work the concession (Arts. XXVI and XXVII). Then the concession may be revoked by the Minister of Agriculture and Commerce in case the working is suspended (Art. XXIX), and he also requires the concessionaire to submit every six months the plan of the existing condition of the mine (Art. XXXI), and also requires him to get his approval whenever a concession is to be amalgamated with another or is to be split up (Art. XLVI). Further, when the location and shape of a concession as represented in the application is discovered to differ from the actual location and shape of the bed, the Minister may order the concessionaire to mark out his concession anew, on pain of revoking the concession if this order is not obeyed.

Use of Land:—The mining operation involoving the use of the surface of land, the interest of a mining concessionaire is often found incompatible with that of the owner of the land. The only way to find a way out of this difficulty is to requisition for the benefit of the concessionaire so much land as is judged necessary for the conduct of his work and to give suitable compensation for this requisition to the owner of the land. It is to regulate these relations which the exploitation of natural resource requires that a special chapter is devoted in the existing law to distinctly defining the right of mining concessionaires and owners of land. According to the provisions therein contained, the owner of the land cannot refuse permitting to the concessionaire the use of his land required in the mining work, the land required being specified thus:—

For the purpose of sinking shafts or boring pits.

For stowing ores, stones, and earth.

For constructing working paths, roads, railways, tramways, canals, ditches or pools.

For constructing smelting workshops and other buildings, electric wires, iron-pipes or chains required in mining.

The owner of the land cannot refuse leasing to the mine-owner the land required for making the foregoing provision (Art. LXVII), and

the mine-owner in return must give to the owner a suitable compensation by way of rent, or damages or must deposit security against rent (Art. L). Further the mine-owner is obliged, on the request being made by the owner of the land, to purchase the land used by him in mining work for not less than three years. All the disputes between the land-owner and the mine-owner may be submitted to the decision of the chief of the Mining Inspection Office, but when his decision is regarded as unsatisfactory by the parties concerned an appeal may be made, in case of lease, to the Minister of Agriculture and Commerce, and to ordinary courts of law in case of other kinds of dispute.

Mining Police :—From the very nature of the work not only is the risk to life greater to those engaged in it than in ordinary work, but the work may also involve serious injuries to other parties, by causing, for instance, the depression of the surface level of the land situated in the vicinity of the mine or by causing noxious gas or poisonous matters to spread in the surrounding district. It being judged unadvisable to leave the control of all those matters to ordinary police who can not be properly qualified for the task, it is provided in Art. LVIII of the existing Mining Regulations that the following matters shall be attended to by the respective chiefs of the Mining Inspection Offices, subject to the supervision of the Minister of Agriculture and Commerce.

Safety of architectural constructions both in the mine and in connection with mining.

Protection of the life and health of workmen.

Protection of the surface of land and of the public interests.

When any cause of danger or of injury to the public interests in connection with mining is perceived by the chief, he is authorized to order the concessionaire to remove such cause, on pain of ordering the suspension of the work in case of his disobeying the order (Art. LIX), while the supervising anthorities may themselves carry out the necessary preventive measure and cause the concessionaries to pay the expense involved in the work.

The Minister of Agriculture and Commerce has further enacted the Rules relating to Mining Police, and enforces strict control over such matters as the use of explosives, arrangements for ventilation, subterranean works, construction of chimneys and boilers, provisions

against accident, etc. The Chief of the Mining Inspection Office sees to the faithful fulfilment of all the points specified in the Rules.

Protection of Mine-workers:—In view of the great risk to life and health, special provisions besides those mentioned in the Police Rules are in force for extending protection to mine-workers and their families, these provisions being intended to enforce proper restriction as to the nature of the work, number of working-hours, relief in case of death or injuries sustained in the discharge of duty. Every concessionaire is accordingly ordered to draw up for use in his own particular concession rules relating to workmen, and to submit to it the draft for the approval of the Chief of the Mining Inspection Office (Art. LXIV), the object of this official interference being to provide against unreasonable demands, made by the employers on employees. Further, the Minister of Agriculture and Commerce is authorized by means of Departmental Ordinances to place restrictions on the working-hours and on the kind of work that may be imposed on female workers, and on the working-hours and kind of work for workmen (Art. LXX); also to cause the concessionaire to make suitable relief provisions both for workmen or their families when workmen meet with death or are disabled in the discharge of their duties. The concessionaire is under an obligation to draw up regular rules to deal with such cases, and to put them in practice with the approval of the Chief of the Mining Inspection Office.

Taxes on Mining:—At first the taxes were of two kinds, one on leases and the other on produce. The former was at the rate of 1 *yen* for every 500 *tsubo* of metallic mine (except iron); 50 *sen* for every 500 *tsubo* of iron and non-metallic mines. The other tax was at the rate of 3 to 20 per cent. of the value of the output. In the 8th year the tax on produce was abolished to give encouragement to the progress of the industry. But the imposition of a tax according to the extent of the concession was attended by a serious defect, for it induced the concessionaire to minimize the extent of the leases and therefore tended to prevent the proper exploitation of natural resources. By the further amendment, the original method of imposing two kinds of taxes was restored, but the rate for lease was reduced to 30 *sen* per 1,000 *tsubo* and the tax on produce, iron excluded, to 1 per cent of the value of output (Art. LXXIII). This

restoration of the tax on leases was partly effected with the object of restricting the evil of forestalment by speculators, while the tax itself was in comformity with a long-established usage. The tax on produce is determined according to quotations in the principal markets, the selling price to take the place of quotations in the absence of quotations (Art. LXXIV). Those for which the quotations exist are at present gold, silver, copper, lead, antimony, coal and petroleum, and the official quotations adopted for the purpose of determining the tax were as follows in the 35th year :—

Kind.	Quantity.	*yen.*
Gold	1 *momme*	5.00
Silver	,,	0.14
Copper...	100 *catties*	36.79
Antimony	,,	17.30
Sulphite of antimony	,,	9.77
PETROLEUM.		
Naka-Kambara, Niigata	1 *koku*	0.92
Amase, Mishima, Niigata...	,,	6.37
Kariha, Niigata...	,,	2.13
Furushi, Niigata	,,	2.98
Naka-Kubiki, Niigata	,,	4.73

COALS. (10,000 Catties).

Places.	Lump.	Dust.	Mixed.	Caking.
Onga, Fukuoka	17.25	11.08	14.77	17.43
Kurata, Fukuoka	22.82	14.90	19.03	16.62
Kabo, Fukuoka	23.00	15.24	17.59	15.49
Tagawa, Fukuoka	27.15	14.68	20.75	—
Kasuga, Fukuoka	22.25	11.78	16.28	—
Miike, Fukuoka	30.32	14.93	22,00	—
Higashi-Matsura, Saga	19.09	5.92	11.82	—
Kinejima, Saga	18.39	5.93	—	—
Kojo, Saga	17.39	5.52	8.78	—
Takashima and Hajima, Nagasaki.	38.15	29.70	32.27	—
Matsushima, Nagasaki	15.00	5.00	10,00	—
Kita-Matsura, Nagasaki	13.33	6.74	7.89	—
Asa, Yamaguchi	12.78	5.17	8.65	—
Taga, Ibaragi	26,35	—	22.27	—
Iwaki and Futaba, Fukushima ...	23,50	14.89	—	—
Sorachi and Yūbari, Hokkaidō ...	36.44	21.64	26.92	—
Kushiro, Hokkaidō	20.24	—	—	—

The quotation of anthractic coal produced at Higashi and Nishi Muro district, Wakayama-ken, was 18.56 *yen*.

Sand ore diggings:—Sand ore diggings are treated by the laws in a manner somewhat distinct from other kinds of ore; in this case the right of priority is accorded to the owner of land containing sand ore. But when the owner does not work the ores he is compelled to grant permission to do so to those who are desirous to dig the ores. The owner is entitled in that case to exact a suitable amount of fee. However the diggings are allowed only to Japanese subjects and no foreigners whether as a private individual or as member of a company is allowed to undertake the work. In most other respects provisions of the Mining Regulations are correspondingly applied to the digging exploitation.

Mining Administration:—Mining administration necessarily presents special features of its own and is distinct from the administration of other industries. To cite some of the principal points with which mining administration deals they are:

I. Matters relating to the registration as to the establishment and cancellation of the right, transfer of right, and burden.
 1. Matters relating to the granting of permission for trial or permanent borings.
 2. Matters relating to the annulment of the permission of trial or permanent boring.

II. Matters relating to the supervision of mining work.
 1. Matters relating to the approval of working plants.
 2. Matters relating to the correct representation of leases and the surveying of the beds.
 3. Matters relating to the amalgamation or splitting up of leases and to their re-arrangement.

III. Matters relating to mining police.
 1. Matters relating to protection of the public interest.
 2. Matters relating to protection of mine-workers.
 3. Matters relating to the safety of mines and of architectural constructions.

IV. Matters relating to disputes.
 1. Disputes concerning the lease of land required in carrying on work.

3. Disputes (first instance) concerning the rent, damage, security against rent, price of land, etc. between land-owners and concessionaires.

The officials taking charge of all those affairs must possess technical knowledge bearing on those points and they therefore differ from ordinary administrative officials in the nature of the work they have to discharge.

The mining administration is subdivided into two branches, central and local. The former is taken charge of by the Director of the Mining Bureau subject to the control of the Minister of Agriculture and Commerce, while for attending to the latter section of business the country is subdivided into five divisions each under a Mining Inspection Office established by the Department of Agriculture and Commerce. The reason why local mining affairs are not left to the control of local administrative offices is because each kind of mineral should be placed under uniform mode of control irrespective of the place of produce and because different treatment by different local offices would only have the effect of preventing the due development of the industry. The Chief of each Mining Inspection Office is the controlling-power of all the mining affairs occurring in his jurisdiction, and he deals with them either with the approval of the Minister or on his own responsibility.

STATISTICS RELATING TO THE MINING INDUSTRY.

For the convenience of reference statistics relating to the mining industry are given here in the form of appendix. These returns are not uniform as to the period they cover for some of them begin as early as the 10th year, though in most cases they begin in 25th or 26th year, to end in the 34th year.

Comparative table showing number of mining lots under trial boring and their areas, in each of the years, specified :—

Year.	Mining lots under trial boring.	Area. *tsubo.*	Mining lots under trial boring changed to mining concessions.
26th	5,700	821,895,953	31
27th	6,095	1,114,842,736	140
28th	3,972	882,650,358	420
29th	3,411	945,875,576	409
30th	4,143	1,518,084,652	203
31st	3,959	1,652,228,849	164
32nd	3,995	1,702,748,427	149
33rd	5,184	2,185,566,080	183
34th	6,862	2,756,322,986	189

Comparative table showing the number and areas of mining concessions in each of the years specified :—

Year.	No. of mining concessions.	Area. *tsubo.*	Increase or decrease in areas (figures for 25th year taken for 100).
25th	3,434	149,517,218	100.00
26th	3,513	187,007,059	125.07
27th	3,725	238,150,911	159.28
28th	4,276	284,807,204	190.47
29th	4,882	373,895,962	250.06
30th	5,123	445,408,492	297.86
31st	5,270	495,849,293	331.62
32nd	5,280	555,391,644	371.45
33rd	5,389	589,778,353	394.45
34th	5,816	704,979,108	471.50

Comparative table showing the number of mining concessions in, or not in, operation in each of the years specified :—

Year.	In operation.	Not in operation.	Total.	Percentage. In operation.	Percentage. Not in operation.
26th...	1,991	1,522	3,513	56.7	43.3
27th...	2,253	1,472	3,725	60.5	39.5
28th...	2,413	1,863	4,276	56.4	43.6
29th...	2,565	2,317	4,882	52.5	47.5
30th...	2,591	2,532	5,123	50.6	49.4
31st...	2,700	2,570	5,270	51.2	48.8
32nd	2,595	2,685	5,280	49.1	50.9
33rd...	2,412	2,977	5,389	44.8	55.2

Year.	In operation.	Not in operation.	Total.	Percentage. In operation.	Percentage. Not in operation.
26th...	114,194 689	72,812,370	187,007,059	61.1	38.9
27th...	154,760,190	83,390,761	238,150,951	65.0	35.0
28th...	174,350,129	110,457,075	284,807,204	61.2	38.8
29th...	114,408,986	159,486,976	273,895,962	57.3	42.7
30th...	235,317,648	210,090,844	445,408,492	52.8	47.2
31st...	253,604,003	242,245,290	495,849,293	51.1	48.9
32nd	268,971,275	286,420,369	555,391,644	48.4	51.6
33rd...	284,249,967	305,528,386	589,778,353	48.2	51.8

Comparative table showing the number of mineral sand diggings in each of the years specified :—

Year.	Gold sand.	Gold and pewter sand.	Gold and iron sand.	Pewter sand.	Iron sand.	Total.
26th...	124	—	1	4	1,549	1,678
27th...	111	1	1	3	1,566	1,682
28th...	181	1	1	3	1,507	1,693
29th...	201	—	—	4	1,478	1,683
30th...	247	—	—	6	1,584	1,837
31st...	294	1	3	4	1,646	1,948
32nd	635	1	3	3	1,562	2,204
33rd...	2,199	1	4	3	1,507	3,714
34th...	3,346	1	4	5	1,559	4,915

Comparative table showing the number of mineral sand diggings in, or not in, operation in each of the year specified :—

Year.		Gold sand.	Gold and silver sand.	Gold and pewter sand.	Gold and iron sand.	Pewter sand.	Iron sand.	Total.
26th	I. O.	71	1	—	—	2	1,076	1,150
	N. I. O.	52	—	—	1	2	473	528
27th	I. O.	52	—	—	—	2	1,020	1,074
	N. I. O.	59	1	—	1	1	536	598
28th	I. O.	76	—	1	—	2	959	1,038
	N. I. O.	105	—	—	1	1	548	655

Year.		Gold sand.	Gold and silver sand.	Gold and pewter sand.	Gold and iron sand.	Pewter sand.	Iron sand.	Total.
29th	I. O.	99	—	—	—	3	943	1,045
	N. I. O.	102	—	—	—	1	1,535	638
30th	I. O.	117	—	—	—	2	1,043	1,162
	N. I. O.	130	—	—	—	4	541	675
31st	I. O.	145	—	1	—	2	931	1,079
	N. I. O.	149	—	—	2	2	715	869
32nd ...	I. O.	233	—	1	2	2	798	1,036
	N. I. O.	402	—	—	1	1	764	1,168
33rd	I. O.	661	—	1	3	2	860	1,527
	N. I. O.	1,538	—	—	1	1	647	2,187

N. B.—I. O.=In operation; N. I. O.=Not in operation.

Comparative table showing annual outputs of principal mineral products:—

Year.	Gold. *momme.*	%	Silver. *momme.*	%	Copper. *kin.*	%	Lead. *kin.*	%	Iron. *Iwan.*	%
10th ...	93,421	50	2,945,417	18	65,970,744	19	454,319	29	2,191,132	41
15th ...	72,455	38	4,634,556	28	9,360,175	27	388,506	25	3,243,583	61
20th ...	138,838	74	9,498,097	59	18,439,613	53	642,619	42	4,071,546	77
25th ...	186,805	100	16,063,426	100	34,544,539	100	1,518,941	100	5,268,417	100
26th ...	196,372	105	18,469,285	114	30,008,664	86	1,854,872	122	4,733,503	89
27th ...	209,509	112	19,209,527	119	33,186,229	96	2,373,927	156	5,182,463	98
28th ...	239,041	128	19,272,544	119	31,856,887	92	3,241,032	213	6,879,366	130
29th ...	256,519	137	17,156,666	106	33,464,615	96	3,257,126	214	7,299,579	138
30th ...	276,427	148	14,478,485	90	33,982,217	98	1,284,856	84	7,464,364	141
31st ...	309,145	165	16,118,242	100	35,039,592	101	2,837,570	186	6,296,225	119
32nd...	446,716	239	14,978,060	93	40,459,709	117	3,313,464	218	6,151,633	116
33rd ...	566,535	303	15,681,595	97	42,182,353	121	3,130,080	206	6,624,447	125
34th ...	647,414	346	13,284,203	82	45,792,576	132	3,004,693	197	—	—

Year.	Antimony. *kin.*	%	Manganese. *kin.*	%	Coal. ton.	%	Petroleum. *koku.*	%	Sulphur. *koku.*	%
10th ...	34,813	1	21,513	0.2	499,106	14	10,114	13	2,208,056	6
15th ...	4,140,625	179	259,437	3	929,213	38	16,450	22	5,671,603	16
20th ...	2,589,971	112	517,113	6	1,746,296	54	30,303	41	17,968,462	52
25th ...	2,305,433	100	8,363,750	100	3,175,670	100	72,893	100	34,142,610	100
26th ...	2,748,895	119	26,737,715	319	3,317,188	104	83,644	113	39,814,386	116
27th ...	2,618,551	113	22,240,739	277	4,268,135	134	151,986	208	31,257,166	91
28th ...	2,805,729	121	28,526 061	340	4,772,654	147	149,497	205	25,884,250	75
29th ...	2,237,615	97	29,893,267	357	5,019,690	158	208,400	285	20,863,373	61
30th ...	1,951,068	84	25,701,496	307	5,188,157	163	231,211	317	22,636,870	66
31st ...	2,061,829	89	19,162,323	229	6,696,033	210	280,742	385	17,202,173	50
32nd...	1,568,462	68	18,893,440	225	6,721,798	211	474,406	650	17,062,186	49
33rd ...	716,477	31	26,384,526	315	7,429,457	233	767,092	1052	24,064,196	70
34th ...	911,462	39	23,244,701	277	8,548,991	269	983,264	138	27,593,778	80

Remark:—The 25th year is taken as standard of comparison.

Outputs of principal mineral products and their value in the 34th year :—

Kinds.	Units.	Quantity.	Value. *yen.*
Gold	*momme*	652,356	3,261,780
Silver	,,	14,174,489	2,055,301
Copper	*kin*	45,652,927	16,252,442
Lead	,,	3,004,983	246,409
Pewter	,,	23,422	13,749
Iron...	*kwan*	18,680,043	2,947,684
Pig iron	,,	14,686,801	2,041,465
Matte...	,,	335,551	32,884
Wrought iron ...	,,	412,246	172,319
Steel	,,	3,245,445	701,016
Sulphate of iron ...	,,	4,690,270	27,782
Silica	*kin*	17,187	1,633
Quicksilver	,,	1,250	1,688
Antimony	,,	911,462	134,814
Refined	,,	714,276	117,856
Sulphate	,,	197,186	16,958
Manganese	,,	27,115,884	108,464
Coal...	*ton*	8,945,939	30,592,971
Bituminous... ...	,,	8,811,903	30,207,203
Anthracite	,,	86,554	230,407
Natural coke ...	,,	47,482	155,361
Lignite	*ton*	9,740	16,343
Petroleum	*koku*	983,799	2,278,418
Sulphur	*kin*	27,580,478	386,127
Black lead	,,	146,495	17,433
Total			58,343,038

Remarks :—The value is calculated as follows :—Gold, silver, copper, lead, pewter and antimony were valued by average exchange quotation in Ōsaka, and the rest by market prices.

Comparative table showing motive powers used in mining in each of the years mentioned :—

METAL MINES.

Year.	Water Wheels. No.	Water Wheels. Actual H. P.	Boilers. No.	Boilers. Actual H. P.	Electric Motors. No.	Electric Motors. Actual H. P.
30th	502	3,680	134	5,486	31	1,571
31st	541	4,342	142	6,355	30	1,728
32nd	573	5,308	145	6,695	36	2,290
33rd	585	6,160	151	6,560	44	3,135
34th	687	7,190	158	7,035	50	4,046
35th	770	8,156	161	7,165	51	4 422

NON-METALLIFEROUS MINES.

30th	2	124	72	1,531	—	—
31st	2	124	103	2,141	—	—
32nd	2	124	148	3,150	—	—
33rd	2	124	224	4,662	—	—
34th	4	174	343	7,054	—	--
35th	4	174	419	8,643	—	—

COAL MINES.

30th	—	—	518	32,143	—	—
31st	1	18	620	36,714	2	126
32nd	1	18	704	43,139	4	81
33rd	1	18	849	49,139	11	402
34th	—	—	999	52,824	15	584
35th	—	—	1,157	58,933	19	1,004

TOTAL.

30th	504	3,804	724	39,160	31	1,571
31st	544	4,484	865	45,210	32	1,854
32nd	576	5,450	997	52,974	40	2,371
33rd	588	6,302	1,224	60,361	55	3,537
34th	691	7,364	1,500	66,913	65	4,630
35th	774	8,690	1,737	74,741	70	5,426

METAL MINES.

	Oil Engines. No.	Oil Engines. Actual H. P.	Total. Actual H. P.	Boilers. No.	Boilers. Actual H. P.
30th	4	17	10,754	153	3,421
31st	4	17	12,442	158	3,567
32nd	5	29	14,322	160	3,667
33rd	3	22	15,877	170	3,829
34th	4	54	18,328	172	3,965
35th	9	77	20,180	177	4,032

NON-METALLIFEROUS MINES.

	Oil Engines.		Total.	Boilers.	
	No.	Actual H. P.	Actual H. P.	No.	Actual H. P.
30th	—	—	1,655	23	218
31st	—	—	2,265	33	275
32nd...	—	—	3,274	46	357
33rd	—	—	4,786	84	985
34th	—	—	7,228	169	2,391
35th	—	—	8,817	205	2,944

COAL MINES.

30th	—	—	32,143	380	11,562
31st	—	—	36,857	446	13,385
32nd...	—	—	43,227	511	15,234
33rd	—	—	49,558	572	16,849
34th	—	—	53,407	650	18,679
35th	—	—	59,936	—	20,491

TOTAL.

30th	4	17	44,552	556	15,201
31st	4	17	51,564	637	17,227
32nd...	5	29	60,823	717	19,258
33rd...	3	22	70,221	826	21,663
34th...	4	54	78,963	991	25,035
35th	9	77	88,933	1,152	27,467

Comparative table showing the number of mine employees in each of the years specified :—

Year.	Metal Mines.	Coal Mines.	Non-Metalliferous Mines.	Total.
26th	53,474	30,345	3,098	86,917
27th	55,703	42,876	2,882	101,461
28th	60,368	54,091	4,504	118,963
29th	59,606	53,751	5,160	118,517
30th	71,988	82,529	6,022	160,539
31st	51,706	75,831	5,194	132,731
32nd	51,141	60,964	7,562	119,667
33rd	54,805	70,508	5,698	131,011
34th	63,980	84,255	6,545	154,780

Comparative table showing the number of mineral sand diggers in each of the years specified :—

Year.	Gold Sand.	Gold and Pewter Sand.	Gold and Iron Sand.	Pewter Sand.	Iron Sand.	Total.
27th	1,376	—	—	73	4,627	6,076
28th	1,426	—	—	65	4,148	5,639
29th	2,072	—	—	43	3,558	5,673
30th	4,659	—	—	41	6,373	11,073
31st	6,990	—	—	19	6,979	13,988
32nd	2,476	5	5	45	3,577	6,108
33rd	5,989	3	35	30	3,778	9,835
34th	7,084	3	6	40	3,500	10,633

Comparative table showing mine workers' wages:—

(ON JULY 35TH).

METAL MINES.

	Males.			Females.			Boys.			Girls.		
	Average.	Highest.	Lowest.	Average.	Highest.	Lowest.	Average.	Highest.	Lowest.	Average.	Highest.	Lowest.
	yen.	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*
Miners... ...	.611	1.500	.125	.206	.360	.090	—	—	—	—	—	—
Timbermen..	.481	.850	.150	—	—	—	—	—	—	—	—	—
Mill hands...	.326	.800	.125	.165	.400	070	.134	.200	.070	.090	.130	.055
Smelterers...	.361	.650	.150	.169	.350	.080	—	—	—	—	—	—
Carriers ...	.416	.830	.160	.230	.400	.084	.167	.210	.110	—	—	—
Miscellaneous hands ...	.405	1.050	.140	.155	.300	.060	.126	.180	.050	.090	.110	.050

NON-METALLIFEROUS MINES.

Miners... ...	.441	1.300	.165	.280	.350	.250	—	—	—	—	—	—
Timbermen.	.488	.700	.320	—	—	—	—	—	—	—	—	—
Mill hands...	.425	.500	.200	.254	.400	.150	.150	.200	.100	—	—	—
Smelterers...	.428	.850	.270	—	—	—	—	—	—	—	—	—
Carriers ...	.398	1.600	.150	.306	.400	.200	—	—	—	—	—	—
Miscellaneous hands ...	.271	1.100	.100	.216	.280	.150	—	—	—	—	—	—

METAL MINES.

Miners... ...	.785	2.700	.288	.408	.682	.203	.298	.497	.209	—	—	—
Timbermen..	.719	1.480	.300	—	—	—	—	—	—	—	—	—
Slate pickers	.393	.700	.195	.262	.560	.140	.177	.280	.123	.167	.260	.110
Carriers ...	.651	1.380	.200	.299	.400	.200	—	—	—	—	—	—
Miscellaneous hands ...	.395	.700	.180	.237	.400	.150	.170	.195	.152	—	—	—

Comparative table showing the amounts of Mining Tax and Royalities in each of the years specified:—

Fiscal year.	Mining Tax.	Royalties.	Total.
	yen.	*yen.*	*yen.*
25th	61,182,944	75,387,048	136,569,992
26th	116,925,915	61,943,080	178,868,995
27th	160,217,932	81,200,315	241,418,247
28th	150,633,889	96,426,996	247,060,885
29th	215,176,494	120,324,232	335,500,726
30th	276,939 544	144,441,080	421,380,624
31st	405,658,600	154,549 850	560,208,457
32nd	427,200,708	178,746,992	605,947,700
33rd	438,015,592	186,232,366	624,247,958
34th	499,477,789	224,050,445	723,528,234

Comparative table showing annual exports of principal mineral products :—

Year.	Copper.		Antimony.		Coal.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	kin.	*yen.*	*kin.*	*yen.*	*kin.*	*yen.*
10th	2,669,127	519,759	*	*	74 906	289,235
15th	4,531,764	627,164	1,895,979	101,112	135,697	435,595
20th	14,243,116	2,031,514	3,429,083	163,871	145,567	496,291
25th	29,966,009	4,863,922	2,047,895	163,309	900,398	2,854,300
26th	25,530,209	4,569,229	2,189,567	183,854	1,094,754	3,288,843
27th	25,404,092	4,900 754	2,682,813	254,261	1,265,504	4,674,305
28th	24,186 770	5,157,667	2,413,185	289,935	1,376,068	5,409,111
29th	24,184,402	5,478,602	1,037,448	83,806	1,614,724	6,242 931
30th	23,224,992	5,774,699	2,623,909	267,584	1,530,147	8,316,776
31st	27,423,890	7,267,075	2,230,644	216,598	1,805,364	12,240,622
32nd	35,507,379	11,383,358	1,743,075	206,516	2,013,695	11,784,713
33rd	34 129,290	12,725,935	627,712	107,008	2,402,785	13,703,655
34th	36,656,434	13,904,610	464 317	78,491	2,922,215	17,542,273

Year.	Sulphur.		Manganese.		Lump Iron.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	kin.	*yen.*	*kin.*	*yen.*	*kin.*	*yen.*
10th	876,695	17,186	*	*	3,639,882	40,734
15th	1,923,253	31,225	*	*	8,955,557	95,438
20th	14,625,329	136,023	*	*	10 890,868	118,369
25th	21,844,290	280,963	13,942,212	95,841	20,536 067	241,317
26th	17,373,205	238,832	31,096,372	221,884	38,808 610	446,477
27th	21,103,646	244 542	29,341,892	198,810	61,081,416	743,553
28th	26,445,913	296,136	27,448,142	196,599	58,859,698	673,796
29th	20,507,630	308,588	34,918,804	274,434	65,059,486	739,566
30th	15,322,308	321,341	24,400,738	205,318	72,737,013	934,010
31st	21,045,466	477,014	16,641,187	156,333	105,669,311	1,381,443
32nd	27,806,716	574,868	15,657,765	152,688	45,407,302	965,544
33rd	29,726,987	698,284	21,504,777	224,397	37,575,476	962,910
34th	29,879,849	661,879	14,921,197	187,177	70,459,634	1,593,311

* Figures not given in the annual list of exports and imports.

Comparative table showing annual imports of principal mineral products :—

Year.	Iron Bars & Iron Rods.		Iron Plates.		Zinc Plates.	
	Quantity. *kin.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*
10th	—	—	—	—	—	—
15th	—	—	—	—	—	—
20th	26,535,603	447,101	11,080,907	275,914	2,606,358	138,580
25th	34,410,245	871,702	10,473,700	359,142	2,475,382	255,019
26th	37,724,154	975,787	14,778,687	522,404	3,275,580	339,027
27th	46,839,223	1,339,034	26,149,653	984,976	3,699,301	426,854
28th	73,639,244	2,085,684	30,362,452	1,104,211	4,740,143	500,863
29th	84,124,111	2,359,705	49,382,096	1,877,905	3,874,846	453,709
30th	92,079,173	3,046,132	44,423,517	2,017,438	5,759,063	734,572
31st	120,636,742	4,061,805	51,036,047	2,271,871	5,374,149	643,825
32nd	59,433,856	2,603,676	95,957,813	3,650,856	6,579,665	1,051,541
33rd	92,975,054	5,243,408	89,535,109	6,175,460	6,271,278	977,703
34th	75,646,217	3,511,756	24,846,633	3,293,305	5,138,339	700,199

Year.	Petroleum.		Steel.		Pewter.	
	Quantity. *gallon.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*
10th	2,682,252	605,598	611,739	46,029	175,747	38,030
15th	20,682,205	2,320,905	1,118,010	67,482	195,426	64,157
20th	21,058,865	1,871,428	3,811,460	143,307	86,697	31,238
25th	32,689,275	3,328,398	4,646,694	229,384	174,655	62,984
26th	49,963,392	4,401,041	6,286,778	296,012	231,941	90,578
27th	55,643,719	5,135,332	4,985,909	362,366	468,123	179,068
28th	44,152,414	4,303,929	6,919,739	503,571	537,631	191,936
29th	54,692,886	6,331,036	9,855,622	804,429	448,517	116,412
30th	61,058,217	7,667,350	6,406,982	476,676	439,596	115,174
31st	67,905,455	7,552,880	9,732,753	964,355	599,936	227,258
32nd	52,421,838	7,918,149	8,118,863	954,700	610,265	361,287
33rd	67,842,324	14,162,652	7,113,832	1,153,822	665,127	473,104
34th	68,996,392	14,943,401	6,230,423	694,836	785,078	530,243

Year.	Lead.		Lead Plates.		Quick Silver.		Zinc.	
	Quantity. *kin.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*
10th.....	4,126,814	287,775	169,129	11,423	54,060	37,191	669,859	53,437
15th.....	953,768	46,796	179,564	8,420	79,857	43,426	672,205	93,045
20th.....	2,286,853	108,835	388,042	16,429	68,696	54,819	528,896	24,996
25th.....	5,131,119	245,383	804,520	37,609	110,800	95,546	575,689	46,701
26th.....	2,942,007	149,328	971,634	45,740	126,869	115,082	1,188,985	95,106

Year.	Lead.		Lead Plates.		Quick Silver.		Zinc.	
	Quantity. *kin.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*	Quantity. *kin.*	Value. *yen.*
27th.....	2,726,253	177,638	1,586,479	89,512	129,871	127,541	799,419	66,970
28th.....	5,305,913	313,632	730,118	44,804	124,923	141,302	1,625,362	134,614
29th.....	4,010,892	257,383	2,154,249	141,357	129,710	139,302	1,794,069	144,240
30th.....	3,283,897	257,805	1,471,946	109 247	133,689	156,527	1,390,417	127,703
31st.....	5,186,318	365,202	628,444	51,182	148 746	176,303	887,054	80,991
32nd ...	5,154,533	412,155	1,185,498	111,744	194,190	219,013	1,718,936	259,606
33rd ...	10,125,210	927,152	1,570,184	174,358	168,212	258,698	5,047 946	686,081
34th.....	10,419,628	876,228	1,207,596	118,575	143,510	218,612	2,061,529	230,559

PRIMARY INDUSTRIES.

FORESTRY.

Introduction—Extent and Ownership of the Forests—Forest Zone and Condition of the Forests—Adjustment—Sylvicultural Economy—Forest-planting and transport—Wood-produce—Management—Education—Legislative measures.

I. INTRODUCTION.

The forests of Japan, her natural ornament, which occupy more than one half of the Island Empire, would appear to have exerted an inspiring influence upon the mind of her inhabitants, for their love of forests and the luxuriance of sylvan growth is observed to be almost intuitive. We are also inclined to think that the Japanese may owe their burning patriotism and æsthetic sense to the profoundly sympathetic influence the forests seem to have exercised upon them. They are instinctively aware of their duties,—so to speak—towards the forests as is indicated by the endeavors they never spare to meet the ever increasing demand for the produce of the forest, to change them in accordance with the new requirements and to maintain their supplies permanently.

The forests of Japan, had, while the country was secluded, maintained their primitive character but when, forty years ago, the changes in her political situation had brought about the expansion of her economic concerns, the forests underwent a revolution in the extent and modes of their utilization. Besides a considerable increase at home in the demand for timber and fuel not only in connection with industrial and mining enterprises and for ordinary building purposes, but also for use as railroad sleepers and telegraph poles as well as for the manufacture of the various wood articles and paper, the recent

development in the transportation industry has caused the traders in forest produce to seek customers abroad especially in China and Korea. All this has in recent years exercised an unequal influence on Japanese forests so that, while on the one hand there are districts where reckless felling has destroyed all the woods except a few protection forests over which Government control is exercised as to cutting, on the other hand there are in the central parts of the country vast areas of wooded land maintaining all its primitive features unaltered.

This anomaly has brought to light the fact that the plans hitherto followed in the management of forests are no longer adequate to meet the future increase of the population and the requirements of the new civilization and points to the necessity for striving to develop to the full the natural capabilities of the forests by increasing their productive powers by the application of technical methods.

II. EXTENT AND OWNERSHIP OF THE FORESTS.

Japan is, as has already been pointed out, an insular country consisting of six larger and hundreds of smaller islands lying in the Pacific Ocean east of the continent of Asia. The hills and mountains being steep the country contains much land which is available for no economical purposes other than sylvicultural. Consequently the area occupied by forests is comparatively very large. According to the Government statistics of the 34th year, which are latest published, that area is 23,087,365 *cho*, i.e. over 59 per cent. of the area of the whole country which extends 24,794. 36 square *ri* or 38,559,078 *cho*. (The area of Formosa and the Pescadores is not included in the above computation, not having yet been ascertained.)

From the point of utilization the Japanese forests are divided into "Utilization Forests" and "Protection Forests." The latter have for their object the preservation of the soil and the increase of the welfare of the community, their utilization being more or less restricted. The Protection forests are of two

kinds, "Absolute" and "Ordinary." The area of the Protection forests in the 34th was 689,469 *cho* of which 4,803 *cho* belonged to the "Absolute" class and 684,662 *cho* to the "Ordinary" category. In the Absolute Protection forests the felling of trees is absolutely prohibited by the State, while in the Ordinary class it is only restricted to a greater or less extent.

All the other forests in the Empire belong to the Utilization class measuring 22,397,896 *cho.* Those forests exclusively maintained for the utilization of their produce are left to be managed by the owners as they like. Those forests of this class which belong to the State and the Imperial Household are generally managed and tended in accordance with modern technical rules and bid fair to be greatly improved with regard to their productiveness. But those owned by the people with the exception of a very small number are entirely left to nature, nothing being done to increase their utility. The areas of the forests of these different ownerships are as follows :—

	cho.
State forests	13,125,320
Imperial forests...	2,091,785
People's forests	7,870,260

The people's forests comprise those owned by Shinto and Buddhist temples, communes and private individuals, their respective areas being as follows :—

	cho.
Shinto and Buddhist temple forests	167,629
Communal forests	1,714,754
Private forests	5,987,877

The State forests are managed by the Government and the Imperial by the Household Department, while over the people's forests the Government merely exercise administrative supervision in accordance with the provisions of the Forest Law.

Of the State forests measuring 13,125,320 *cho*, 7,632,831 *cho* are under the the jurisdiction and management of the Agricultural and Commercial Department of the Imperal Government,

but 5,492,489 *cho* in Hokkaidō are placed under the control of the Home Department for colonial affairs. The forests in Formosa are maintained according to special laws and regulations by the Governor-General under the supervision of the Minister for Home Affairs.

These figures are not, it must be owned, the result of accurate scientific surveying, the statistics relating to the State and Imperial forests being taken from the Government Forest Register compiled according to the Provisional Regulations for Government Forests of the 18th year and those relative to the people's forests from the Land Register prepared by the Treasury Department for the purpose of taxation in accordance with the Regulations for the Revision of the Land Tax established in the 16th. These registers being based on very rough surveys the figures above mentioned will have to be more or less modified, when the work of forest adjustments and investigation now going on shall have been completed. Inaccuracies are especially likely to be found in the case of the people's forests for, as the years went by, there must have been lands converted from other classes of land into forests and from forests into farm or building lots.

In this period of renovations the areas of forests are subject to changes both absolutely and in respect of proprietorship, as transfers and conversion into other classes of estates are taking place and such changes will not cease until the completion in the 47th of the work of the special State forest adjustment undertaken by the Government.

For an historical account of the proprietorship of the forests we have to go back to feudal times, when the country being divided up into 264 estates under so many lords, who had unrestrained power over land. Taxes and forced contributions paid to a lord used to be paid to him in kind, and as the produce of forests were an especial object of his ambition, means were always resorted to for increasing the supply of trees. Thus stringent orders were enforced for the encouragement of planting, and the interdiction of the reckless felling of trees, while much was done for the general protection of

forests. Under the circumstance there occurred for many centuries little or no change in the sylvan wealth of each district. But when the new Government was established all old customs and restraints were laid aside and an extraordinary change took place in the economical and commercial conditions of the whole country. This change caused many a forest to be carelessly felled both by its proprietor and by robbers and thieves who thus took advantage of the anarchy that prevailed after the war in order to enrich themselves. Then forest fires, in many cases incendiary fires, spread in every direction so that within a very short time the sylvan wealth of the country which had been accumulating for two hundred years underwent a big and sudden reduction. Later on the Government introduced a new policy in respect of land, granting the people the right of freely holding and utilizing it on their own account. At a time it was thought that it would be hardly possible for the State to manage and control in any suitable manner the big forest areas and that they had better be transfered to private individuals. This idea had for a time gained ground among the Government authorities, who went so far as to issue an ordinance regarding the wholesale disposal of the national forests. The Government was, however, soon convinced of the detrimental effect this ill advised policy had on the financial situation of the country, and put a stop to it by discontinuing the operation of the ordinance save in the case of forests placed in exceptional circumstances. The forests of this country having been maintained by virtue of the excessively stringent ordinances of the feudal times, their distribution was so very irregular that the authorities must have thought it hopeless to place them under a uniform system either for the purpose of protection or of utilization. They must also have thought that the forest areas being vastly out of all proportion to the lands devoted to other uses more directly concerned in the maintenance of human life, it would be a wise stroke of economical policy to reduce wooded areas so as to increase the land available for agricultural purposes. It was perhaps a proper measure at the time to transfer to private proprietorship such forest areas as were fit for use as agricultural or pastu-

rage ground. In the 7th year in pursuance of the above idea and with a view to the encouragement of popular enterprises a critical examination of the State forests was instituted and some of them were transferred to private persons to be maintained either as forests or to be converted into farming or gardening lots. Later some wooded land was sold to such Shizoku or Samurai as had relinquished their pensions, the object being to grant them a financial foundation on which they might build a decent independence. Still later some lands which had remained unexamined or had been included in Government property through error, were restored to such parties as could produce evidence of their ownership. All these transactions, which caused a considerable reduction of the area of State forests, merely resulted in the reckless destruction of forests with little or no benefit to the country. But the annual increase of population demanding a greater area under cultivation the practice of selling portions of some State forests had to be continued, while on the other hand the work of regulating the State forests was proceeded with by determining their areas and boundaries, and in the 23rd the Regulations for the Sale of State forests after their conversion by the intending purchasers into tillage land or pastures, Imperial Ordinance No. 69, were promulgated with a view to the further increase of tillage land and pastures. These regulations have caused forest areas to be increasingly converted year after year into arable land, so that nearly all plains, plateaus and hill-sides having but a slight declivity have been put under tillage, while the forests receded to remoter mountains. In these different ways so much as 1,500,000 *cho* were withdrawn from the forests area during the first twenty years after the Restoration, the period in which temporary and almost reckless measures were taken probably to the detriment of the general economy of Japanese forests. But at the end of that period the Department of Agriculture and Commerce instituted a pretty close examination of the State forests, the result of which examination was their classification into those that may be alienated and those that have to be permanently maintained as State property, making the alienation of any State forest thereafter an impossibility except in accordance with the requirements of general management. These investigations showed that so much as 741,543

cho was still transferable to private ownership. Thus although the area of State forests was steadily reduced on the one hand, yet on the other new forests were planted in accordance with the new working plan, while some lands having trees standing thereon were placed anew in the "Forests" class as the result of investigations, so that on the whole the area of State forests neither decreased nor increased to any considerable extent during these years. Later in the ten years from the 23rd to 34th, the area of State forests under the control of the Department of Agriculture and Commerce increased by 572,831 *cho*, against decrease of 433,068 *cho*, the net increase being 139,763 *cho*.

In 22nd year State forests in Kanagawa, Yamanashi, Shizuoka, Nagano, Gifu, Aichi, Miye, Aomori, Iwate and Tochigi prefectures and Hokkaidō, to the extent of 3,649,848 *cho* in all, were transferred to the Imperial Household to constitute the Imperial Forests. These forests being similar to State forests in their nature and features, it goes without saying that some of them are paying concerns, while others are not. In 25th year the Household Department commenced the work of investigating the Imperial forests, as the result of which some of them have been disposed of from time to time since the 31st. In 22nd year over 1,370,000 *cho* in Hokkaidō were returned to the State control, while some forests were resold to such temples, Shintō or Buddhist, as had formerly been their possession, in compliance with the regulations established for the special disposal of such forests. Besides, some of those that had been classed as Government property, through error, on the occasion of the land tax revision in the early years of Meiji were restored to their rightful owners. Such transfers not having yet been completed, it will be years before the area of the Imperial forests becomes fixed. From the 22nd to 33rd year this kind of His Majesty's property increased by 59,533 *cho*, while decreasieg by 1,453,342 *cho*, so that the clear loss was 1,383,809 *cho*. The increase was principally due to the correction of the former computation of areas and to the declaration of lands presenting a sylvan appearance as forests, while the chief causes of the decrease were the expropriation of some forests in Hokkaidō and the reclamation and sale of some forests for conversion into arable land.

The Imperial Forests are divided into two classes: Hereditary and Ordinary. The former class comprises such forests as are so thickly wooded and extensive as to furnish enough material for a regular working plan framed on the basis of economical considerations. Such forests are made extremely difficult of conversion by the Imperial House Law. Hence changes of areas rarely occur except in the forests belonging to the other class. In 34th there were 997,250 *cho* of the Hereditary class and 1,100,536 *cho* of the Ordinary class.

The forests owned by public corporations, religious establishments and private persons are now subject to greater and more frequent changes than the State and Imperial forests because of the recent slackening of Government control over them and the vicissitudes in the economical conditions of the country. And the decrease of the forest area since the Restoration is mainly due to the reckless felling of woods owned by private persons. We have no statistics showing the extent of such reduction, but see it indirectly shown in the increase of land under cultivation and pasturage. Private forests, however, were increased to a certain extent by the purchase of some State or Imperial property.

Besides the forests above mentioned there are in this country vast areas of land the uses of which are yet undecided. They are known by the name of "Genya" as distinguished from forests, being a class of land established on the occasion of the land tax revision. In the early years of Meiji the classification of lands was made merely with regard to their features, without paying any attention to their position or nature or to the relations they bear toward each other. Thus the division into Forests and "Genya" seems to have been based on no other consideration than the presence or absence of trees. At present there is over 2,645,322 *cho* of "Genya," which, we may observe, will in the near future, except such portions of them as may from their nature be made into pastures or cultivated land, be mostly converted into forests. This class of land is especially abundant in the northern provinces of the main island and in Hokkaidō. Some of the "Genya" already present quite a woody appearance and bid fair to become perfect forests in no distant future.

Of the above-mentioned area of the "Genya" 1,434,666 *cho* belongs to the State; 157,174 *cho* to His Majesty the Emperor and the remainder 1,053,482 *cho* is either private or communal property.

Forests are found everywhere in the Empire from Formosa on the south to Hokkaidō on the north. But their distribution is varied in accordance with the general shape of the country, with the height of the mountains and hills and with the density of the population. With the exception of a small number of forests on level ground found here and there, Japanese forests form a long string on the mountains running lengthwise through the middle of the country. In Hokkaidō the mountain ranges which traverse the whole island, lengthwise and crosswise, constitute a splendid forest-area. In the main island a chain of forests begins with Mount Hakkoda in Mutsu, which, runs through Rikuchū and Mount Azuma in Uzen, reaches the boundary line between Shinano and Echigo, whence it goes on to form the Kiso forests, where bending southward it runs in an unbroken line from Mount Asama in Shinano to the Imperial forests of Fuji and Amagi between the provinces of Kai and Suruga. In the province of Kii the range starts from Mount Kumano whence it runs to meet the woods in the Yoshino districts, Yamato. In Shikoku the line crosses the boundary between Sanuki and Awa and proceeds over the summit of Mount Ishizuchi to the forests in Tosa. In Kyūshū the line is continued through Mount Aso and stretches to Mount Kirishima toward the south. Thus the forests of Japan mostly lie in the mountainous districts along the backbone of the country and are scarce on the plains along the seaside. Again they are most numerous in the cold regions in the north and considerably less in the warmer regions in the south, as shown in the following table:—

	Hokkaidō.	Northern prov., Main Island.	Southern prov., Main Island.
	cho.	*cho.*	*cho.*
State forests	5,492,890.0	5,773.689.7	698,480.8
Imperial forests...	651,649.5	1,135,074.2	305,061.7
Private forests	14 827.7	3,184,358.1	3,283,306.1
Total	6,158.966.2	10,093,122.0	4,286 648.6
	sq. m.	sq. m.	sq. m.
Area	5,987.03	9,765.77	5,149.73

	Hokkaidō.	Northern prov., Main Island.	Southern prov., Main Island.
Population	982,426	19 439,079	14,110,730
Area of forests per sq. m....	*cho.* 1,029.6	*cho.* 1,034.5	*cho.* 832.4
Area of forests per head ...	*cho.* 6.27	*cho.* 0.52	*cho.* 0.30
Forest area as compared with the area of the whole country	% 66	% 66	% 53

	Shikoku.	Kyūshū.	Loochu.	Total.
	cho.	*cho.*	*cho.*	*cho.*
State forests	336,312.0	777,718.6	46,629.5	13,125.319.6
Imperial forests...	—	—	—	2,091,785.4
Private forests	689,761.0	687,588.8	10,418 8	7,870,260.5
Total	1,026,073.0	1,465,307.4	57,048.3	23,087,365.5
	sq. m.	sq. m	sq. m.	sq. m.
Area	1,227.21	2,734.08	143.98	24,998.80
Population	2,933,657	6,420,793	465,470	44,352,155
Area of forests per sq. m....	*cho.* 836.2	*cho.* 535.9	*cho.* 396.2	*cho.* 923.6
Area of forsets per head ...	*cho.* 0.35	*cho.* 0.23	*cho.* 0.12	*cho.* 0.52
Forest area as compared with the area of the whole country	% 53	% 34	% 26	% 59

Note :— 1. The above table does not include the forests in Formosa and the Kuriles Islands which are under investigation at present.

2. The "Northern Provinces, Main Island" in the above table comprise the districts under the jurisdiction of the Aomori, Iwate, Akita, Miyagi, Fukushima, Tokyo, Nagano, and Ishikawa Major Foresty Offices, while the "Southern Provinces" comprise the districts under the Ōsaka, Okayama and Hiroshima Offices.

The above table shows that in Hokkaidō and in the northern provinces of the main island, forests occupy 66% of the whole area, while in the Loochu Islands only 26% is wooded land. Kyūshū has 34% and the southern provinces of the main island and Shikoku have 53% each. Leaving Hokkaidō, which was opened up to colonization only 30 years ago out of consideration for the present, Japan, as may be seen by a glance at the map, has high and steep mountains in the north which are densely covered with forests. In the middle of the island, near Mount Fuji, the land reaches the utmost elevation and thence toward the south-west

the country becomes more and more open, with a range of hills which is interested by only a few high mountains. These geographical features have had much to do with the unequal distribution of forests in the country. The difference of economical development in the various districts was also a powerful agent in this connection. In Shikoku, Kyūshū and the western portion of Honshū or the main island, where civilization made its first appearance in Japan, the people have had better means of transportation than in the other parts of the Empire, and the demand for timber increasing in proportion to the growth of the population, forests have been rather recklessly felled. This together with the greater need than in other regions for agricultural land must have led to the present scarcity of forest land in these parts. From the standpoint of population the Loochu Islands with 1 *tan* 2 *se* of forest land per soul rank the lowest; Kyūshū has 2 *tan* 3 *se*; the southern provinces of Honshū, 3 *tan*; Shikoku, 3 *tan* 5 *se*; the northern provinces of Honshū, 5 *tan* 2 *se*; Hokkaidō where the population is smaller than in any other division of the Empire, enjoys by far the greatest share of forests per soul, to wit; 6 *cho* 2 *tan* 7 *se*. In districts having a dense populations there are more private and communal forests, especially the former, as compared with State forests, than in districts thinly populated. In the southern provinces of Honshū we have 698,480 *cho* of State forests against 2,314,296 *cho* of private and communal forests, the ratio being 3½ to 1 in favor of the latter. In Shikoku this ratio is 2 to 1, while in Kyūshū the two classes of forests are of nearly equal extent. On the contrary in the northern provinces of Honshū, private forests occupy only one-half the area of the State forests. In localities abounding in private or communal forests, the State forests are all situated in remote mountain districts, the forests near market towns having facilities for the transportation of timber being owned either by private individuals or by juridical persons. All these forests except a very few have hitherto been managed without any regard to sound principles and are therefore in a very impoverished condition. Some of them have lately been classed as protection forests in accordance with the provisions of the Forest Law. It is indeed in these districts that the greatest number of protection forests is found.

Ill-managed forests are only too numerous everywhere in the Empire, but their producing capacity being made very small in consequence of injudicious cutting, in some districts the local forests are inadequate to meet even the ordinary demand for timber. Such is already the case in the southern provinces of Honshū and Kyūshū, where the recent development of mining and industry has produced a considerably increased demand for timber. In those parts the local forests supply little besides wood for the purposes of fuel and timber is purchased from other districts in yearly increasing quantities. The northern provinces of Honshū and Hokkaidō are yet rich in forests both as regards area and producing capacity, a great number of forests being still placed outside the domain utilization. There we find forests in the neighbourhood of towns and villages, the produce of which being more than sufficient to meet the local needs for building, industrial and mining purposes, is exported to other districts and countries in large quantities. For Hokkaidō exports timber to Honshū and to China and Korea for use in house and railroad building. The *Hiba* (Thujopsis dolabrata) and *Sugi* (Cryptomeria japonica) timber produced in Aomori and Akita prefectures is exported not only to Tokyo and Ōsaka but to Shikoku and Kyūshū. It may be interesting to note that while, in the northern provinces of Honshū, the splendid forests in Kiso, Akita and Aomori, the Kurobe State Forest in Etchū, the private forests in the Tone districts in Joshū, at Hayaike Mine in Rikuchū and in the Chichibu districts in Musashi as well as Guntakusan in Rikuzen and Asamayama and Yatsugatake in Shinano producing valuable species of timber are all natural forests and in the Hokkaidō there are almost inexhaustible forests left to the bear and deer, the forests in the southern provinces of Honshū, Kyūshū and Shikoku are mostly artificial forests, although there are some artificial forests along the River Tenryū in Enshū and in the Tama and Chichibu districts in Musashi and splendid natural woods at Yanase, Tosa and Yakushima, Osumi. Sylviculture was early developed in Yoshino, Yamato; in Muro, Kii; in Kuwata Gun, Tamba; in Chizu and Yotsuka Gun, Inaba; in the Aso districts, Higo; and in Nose and Kawabe Gun, Settsu, where we now find splendid woods producing both timber and fuel and managed under a system founded upon economical principles. The owners of these

forests have lately come to consider it to their advantage to cut their trees earlier than in former times having the production of big timber for special purposes to the natural forests in the north. This is a point to which the sylviculturists of Japan ought to pay some attention.

The geographical position and features of forest land, the climate and the geological nature of the soil exercise manifold influences on the species of trees growing in such land and on their rate of growth.

The Japanese Empire is, as we have already pointed out, comparatively narrow from east to west and elongated from north to south, extending from 21°40′ to 50°56′ N. L., a distance of 53,621 metres. Its climate is subjected to very complex variations by the dry winds coming from the Continent over the Sea of Japan on the west and by the presence of the moisture carried from the Pacific Ocean upon the south-east. The main body of the country formed by the union of the Saghalien system on the north and the Kunlung system on the west runs from north to south, is broken at several points by volcanoes and presents a very irregular surface, the highest spot reaching as high as 3,500 metres. Climatic conditions are therefore very different in different parts of the country, but no place in it except a portion of the Kuriles Group and a few high mountains, is found unfit for the growth of forest trees. We have all species of such trees growing in Japan from those belonging to the Torrid zone to those of the Frigid. Thus Japan is as rich as any country in the world in her arboreal flora. Extremes of temperature are unknown owing to the peculiar distribution of land and water and to the geographical position, the annual average in Formosa being 23° C. and that of Kamikawa in Hokkaidō 5°1. Taking the averages of the four months from April to July (months, having, so to speak, the greatest influence on the growth of forest trees) we find that Kyūshū indicates 21°2; Shikoku 20°9; the Southern provinces of Honshū 20°4; the northern provinces 18°4; and in Hokkaidō 12°7. The annual average is seldom found even in the high mountain districts to fall below 10° C. In comparing these with Dove's recognised standard temperatures it is found that they are higher by 1° for the summer months and 7° lower for the winter

months. In the course of the year the temperature falls lowest in the month of February and rises highest in August gainning 4° per month on the average. In August the downward course is taken until February next. It is observed that the period during which the temperatures rise is long and that they fall by sudden pits during a short period—conditions favourable to the growth of forest trees as is proved by the rapidity with which they actually grow in Japan. But it is to be remarked that the sudden changes that occur in some places are often found to be detrimental to young trees by causing either early or late frosts.

The direction of the winds is varied by the pressure of the air and with the change of the seasons. According to the returns of the Central Meteorological Observatory, from early Autumn to Mid-Spring high pressure prevails in the north-western quarter of Japan while low pressure prevails on the Pacific on the east. From Mid-Spring to late Summer, the situation is reversed, high pressure always reigning on the Pacific and low pressure being observed in Siberia over the Sea of Japan. Therefore in the months of May, June, July and August the winds are mostly southerly, while in the other months they are northerly. During the interval in which this general alteration in the direction of winds occurs, violent changes take place sometimes causing gales and hurricanes which prove detrimental to forest trees which are not sufficiently crowded. The cold northerly winds in Spring and Autumn sometimes blow with great force and injure the growth of forest trees in North Japan.

Japan, being surrounded on all sides by the sea, has warm ocean currents running near her shores and a range of mountains running from north to south which intercepts the moisture from the sea and causes it to be condensed. Hence the rainfall in Japan is very great, being never less than 600 mm. and sometimes as much as 3,000 mm. in a year. The number of rainy days in the year sometimes exceeds 160. The half of the country facing the Sea of Japan is visited in the winter by winds that have passed over the warm currents and that half has in consequence an abundance of rain and snow, while in the half looking upon the Pacific there is a heavy rainfall in Summer

and Autumn owing to the moist southerly winds. Such is the inevitable result when the progress of the moisture-laden air is cut short by the mountain chains. The province of Nagano, which has mountains all around it, has no greater rainfall than 900 mm., while Fushiki in Noto on the Sea of Japan and Numazu in Suruga on the Pacific Ocean have a rainfall of 2,077 and 1,800 mm. respectively. The amount of moisture in the air is never less than 60%, the annual average being 80%. This abundance of moisture, of rain and of snow is extremely favourable to the growth of plants and although thunder and showers in the summer are generally welcomed, yet sometimes they rise to the dignity of storms and prove very destructive. In the winter and winter months the trees in the north have to bear heavy masses of snow or are buried in snow and they sometimes receive a considerable amount of damages from this cause.

The land occupied by the sylvan flora of Japan has rocks belonging to almost all geological groups from the Archæan to the Cainozoic. They are different in different places and very complex in structure.

The forests in Hokkaidō mostly stand on new volcanic rocks and sedimentary rocks, such as sandstone, tuffs, and conglomerate belonging to the Tertiary system and in a limited space upon Palæozoic rocks. The forests in the Akita and Aomori prefectures in North-Japan are found upon igneous rocks of the Tertiary system. In Central Japan the mountain ranges facing the Pacific Ocean geologically belong to the Archæan and Palæozoic groups, while the forests in the Kiso districts are flourishing upon granite and other igneous rocks and also upon rocks of the Palæozoic group. The forest land in the Muro districts in the province of Kii is geologically porphyry ejected in the Mesozoic era and the Yoshino forests in Yamato belong to the Archæan and Palæozic groups. The forests in western portion of Honshū, especially Chugoku, stand upon granite, while those in the provinces of Tamba and Tajima are found upon rocks of the Palæozoic group. The mountains of Shikoku like Yoshino in Yamato are composed of Palæozoic and Archæan rocks. In Kyūshū only the southern

section belongs to the Palæozoic group, the greater part being mostly composed of igneous rocks. This country fundamentally composed of Archæan rocks have other strata upon them, which are ejectamenta from volcanoes in the different periods of geological changes. These occasional additions of igneous rocks have been so large that at present nearly one-third of the forest land in the whole country is composed of such rocks, of which the principal rock belonging to the Archæan period is granite and those that were ejected in the Palæozoic and Mesozoic periods are granite, porphyry, diorite, porphyrite and others. Of the ejected rocks belonging to the Tertiary and Quaternary periods there is a large number, but those covering large ones are andesite and basalt.

These rock formations together with other requisites for the growth of forest trees are found to have exercised special influences in accordance with their density and structure upon the generation of the sylvan flora and to possess no small bearing on the formation of forests.

It is a notable fact that among the extensive forests of coniferous trees that have continued to maintain a fine appearance from ancient times, those depending on natural regeneration are mostly found upon igneous rocks, while the majority of those depending on artificial regeneration stand on sedimentary formations.

The fact that geographical and climatic conditions of the country vary in different places as stated above is favourable to the growth of various kinds of forest trees and the fact that the topographical and geological features of the country are also quite different in different places has caused a variety of forest growths to spring up. As it is, no less than eight hundred species and varieties of forest trees are found to be well suited for culture here. But at the present stage of the development of forest work in this country the economy of forest management does not attach any special importance to over ten or twelve more species of forest trees.

The forests of Japan as shown in the chart of Japanese flora exhibited by the Foresty Bureau at the Foresty Build-

ing attached to the Fifth National Industrial Exhibition in Osaka are divided into four groups, viz: Tropical forests, Sub-Tropical forest, Temperate forests and Arctic forests.

Tropical forests grow in the whole of Formosa, the southern half of the Loochoo Islands, the Yayeyama Group and the Ogasawara Islands. From the standpoint of altitude these forests are found on Niitakayama in Formosa below 500 metres where the annual temperature does not fall below 21° C.

Of the tropical flora the banyan heads the list followed by several species of palms and the bamboo. The banyan tree is represented by more than 18 species, all of which are found to be capable of luxuriant growth. But this and other tropical plants do not furnish useful timber except the bamboo, several species of which are found in groves everywhere in these regions, growing with wonderful rapidity and producing huge canes, hard and strong, useful for manufacturing various kinds of utensils as well as for building purposes.

The Sub-Tropical forest regions comprise a portion of the Loochoo Islands, the whole of Shikoku and Kūyshū and the part of Honshū lying south of 36° N.L. With reference to altitude, places 1,900 metres above sea level in Formosa, below 850 metres in Kyūshū and below 500 metres on Mt. Tsukuba in the province of Hitachi, Honshū, enjoying an average annual temperature of 13° 21′ C., belong to this section.

The sub-tropical trees are of numerous species and are highly valued in sylvicultural economy. As the better known parts of Japan, the "beaten tracts" as the tourist would call them, "Japan proper" as the geographer would say, have a dense population and early developed industries, they do not now possess forests enough to meet the local demand for timber. As the result of continued reckless felling that has been going on in these regions for many years, there remain only a few forests preserving their primitive features, and in Honshū it might be said that there are no such forests

except within the precincts of the Shinto or Buddhist temples. The characteristic of Sub-Tropical regions is that they are in possession of broad-leafed evergreens, but as the result of careless cutting and conflagrations deciduous broad leaf species and the red pine have made intrusions changing the sylvan aspect to a remarkable degree. In accordance with the present features the forests in these regions have to be divided into three classes, broad-leafed evergreen, broad-leafed deciduous and pine forests.

The species of chief importance to the sylviculturist among the broad-leafed evergreen trees are no more than the undermentiond :—

Camphor Tree (Cinnamomum Camphore, Nees):—Being a native of this zone, the camphor tree grows in Shikoku, Kyūshū, Formosa and the province of Kii in Honshū. This species is sometimes found forming a big forest. It grows everywhere in this zone, if the soil is clayey and fertile, especially in places facing the south and free from cold winds. In Formosa it is found as high forest, either pure or mixed, up to the height of 1000 metres above the sea level. In Kyūshū, Shikoku and the southern provinces of Honshū old and big trees of this species are found here and there, thanks to the time-honoured custom of using them an ornamental groves of both Buddhist and Shinto temples. The timber is somewhat hard and lustrous and has a peculiar odour. It is prized for use in making valuable articles of furniture as well as for ornamental purposes. It lasts well in water and has been valued from ancient times in shipbuilding. In recent years the demand for it as material for the production of camphor valuable in the various branches of industry has very largely increased and forests have been planted both by the Government and by private persons.

Tsuge (Boxus Sempervirens, var. Japonica, Mak.) :—This tree even in the largest specimen measures not more than 50 centimetres in diameter and 15 metres in height. The timber is exceedingly hard and close and fine grained, so that the year-rings can hardly be distinguished. The inner wood is lustrous and pretty and is used not only in fine sculpture but in the making of valuable articles and nice rules and instruments because of its freedom from shrinkage or expansion, whether wet or dry. The tree grows in Kyūshū, Izu and other provinces, especially in the Kawara and Koshoyama

State forests in Kyūshū and in the private forests in Mikura and Miyake islands in Izu. Is a shade-loving tree and grows well in calcareous soil. The young trees are liable to frost damage, hence they must be made to grow under protecting trees. Reproduction by means of planting young shoots or the insertion of sprigs.

Ubame-gashi (Quercus ilex, var. phillyrevides, F. r.) :—The several varieties of *Kashi* (oak) are the most widely distributed of the broad-leafed evergreens. The *Ubame* is found in the southern provinces of Honshū, in Awa, Kazusa and Shimōsa, in Kii and in the southern part of Shikoku. On the shores of Tosa and Kii, they are found growing in pure woods, but in other places mixed with other varieties of *Kashi*. The timber is white with a shade of yellow, is the hardest and heaviest of all timbers produced in Japan. It is used in house building where hardness and strength are required, but the chief use is in charcoal making. It is considered the best fuel wood in Japan.

Ichii-gashi (Quercus gilva, Bl.) :—

Shira-gashi (Quercus vibrayeana F.r.) :—

Aka-gashi (Quercus acuta, Thumb.) :—

These three species are the most extensively utilized of all broad-leafed trees, The timber closely resembles that of the *Ubame-gashi*; but its growth quicker than the growth of trees of that species. Is valued in the making of the handles of agricultural and other tools and implements; also in making wheels and rudders. The *Ichii* is sometimes found growing so big as 55 centimetres in diametre and 30 metres in height, the bole measuring 15 metres. Under the old régime the wood of this tree was highly prized for handles of spears and in the several clans there were strict regulations forbidding the felling of trees of this species. Grows in Kyūshū, Shikoku and the southern provinces of Honshū. Pure woods are rare; found mixed with other species of *Kashi*. Very widely distributed; fond of shade and grows well under standard trees. This tree is reproduced either naturally or by planting.

The deciduous broad-leafed trees belonging to this zone are mostly found in planted woods, the principal species being *Kunugi*, *Konara* and *Shite*.

Kunugi (Quercus cerrata, Bl.) :—This species ranks high among

Japanese trees in affording excellent firewood; ranks next only to the oak for use in making charcoal, the far-famed Sakura and Ikeda charcoal being made from this wood. Not found in mountain regions. The home districts of these trees were limited to the neighbourhood of the province of Settsu and a part of the Musashi plain. But the trees being easily make to form a coppice under a short-term rotation founded on very economical calculations, they are now found everywhere in the country planted as private property, except in the northern half of Honshū and the whole of Hokkaidō. The bark contains tannin and is therefore used for dyeing purposes and in the curing of skins. The wood is also extensively used in the shape of logs for growing *Shiitake*, a kind of edible mushroom, thereon.

Konara (Quercus glandulifera, Bl.) :—Also valued as a firewood charcoal yielder and commands a large sale. Found as a principal tree in natural mixed forests in the hilly and mountainous districts of Honshū covering immense tracts. It is also found in Hokkaidō. Like *Kunugi* it is somewhat fond of light and may grow in any land holding a suitable quantity of moisture within the temperate regions. It is coming into vogue for the making of artificial coppices of this species of oak mixed with *Kunugi*, *Shite* and other trees.

The Pine family is represented by two species: *Akamatsu* or red pine and *Kuromatsu* or black pine:

Akamatsu, Red Pine (Pinus densiflora, S. et Z.) :—The most widely distributed of all the coniferous trees in Japan being found from the southern extremity of Kyūshū to the southern portion of Hokkaidō. It thrives in all soils except in places where more or less water always stagnates. It fond of dry, well-drained land yellowish or reddish in colour. When plains, hills or mountains are deforested either by reckless felling or fires, it takes possession of them before other kinds of forest-trees begin to grow. In the southern portion of Honshū it is found in excellent condition at the height of 2,000 metres above the sea. It demands light and hates shade. Forms splendid forests either by natural or artificial regeneration. Mostly found in pure woods; sometimes as mixed woods planted with the bamboo, *Konara* and other trees. Because of its hardy nature and speedy growth, communes, religious establishments

and private persons are very fond of planting groves composed of these tree. It is to be remarked that in the southern and central portions of Honshū, where, in consequence of wanton felling, the soil has been greatly impoverished, the red pine will come to occupy vast areas in the near future. The wood, which is, yellowish white with a shade of red, is hard, strong and elastic and contains a large percentage of resinous substances, which makes it proof against moisture; hence prized for use in engineering works and as mining props. Used for building purposes though not nearly equal to *Sugi* and *Hinoki* in this respect. As firewood ranks among the most indispensable kinds of wood used for that purpose. The pine mushroom (*Matsutake*) called the king of table mushrooms grows in the red pine forests in the southern part of Honshū.

Kuromatsu, Black Pine (Pinus thenbergii, Parl.) :—Like red pine it serves various purposes. The wood, which is somewhat reddish in colour, is strong and hard and contains a very large percentage of resinous substances. Being very durable is suited for bridge foundations and for use in general earthwork engineering. As firewood, it valued as a great heat-producer, it is the root-wood of this tree which is especially rich in resin that the fisherman uses as torches. Thrives well in sandy soils along the seashore over which the salt-bearing breezes blow. Found all along the coast of Shikoku, Kūshū and Honshū; the area covered very extensive.

Besides there we have groves of bamboos in the sub-tropical regions. Bamboos take rank among useful timbers of Japan. The chief species of bamboos cultivated are *Madake*, *Hachiku* and *Mōsō*.

Madake (Phyllostachys bambusoides, Sieb. et Z. and *Hachiku* (Phyllostachys puberula (Miq.) Munro).—Have been used from ancient times for making various tools and utensils and for building and ornamental purposes. Recently bamboo work was largely exported to Europe and the United States. Extensively cultivated by private persons in the southern part of Honshū, Shikoku and Kūshū. The neighbourhood of Kyoto and Nara abound in splendid bamboo groves. At Yamashina, Kyoto, there are groves producing *Madake* canes measuring 22 centimetres in diameter and 22 metres in length. Bamboo groves are mostly found planted either between plots under culture or on hill-sides. They are rarely of any con-

siderable size. Bamboo planting is fitted for sylviculturists with small capital.

Mōsō (Phyllostachys nutis, Rivier):—The largest of the bamboo family; sometimes found of such dimensions as 30 centimetres in diameter and 25 metres in height. Planted in groves mostly in Kūshū, Kii and the provinces adjacent to it. Valued for the manufacture of tools and utensils.

The Temperate sylvan flora extend from the northern half of Honshū to the southern half of the Hokkaidō between 36° and 43.°5 N. L., where the average annual temperatures range from 6° to 13° C. The Temperate forests rise in Formosa to the height of 3,500 metres: in Shikoku 1,800 metres; in Central Honshū a little lower, to wit, 1,500 metres; and in South Hokkaidō 500 metres.

These forests cover a large area and not a few of them maintain their primitive features. Being mostly natural woods of splendid trees they form the most important item of Japanese sylvan wealth. But as in these regions the climate gets rather cold and the snow lies on the ground during half the year, the trees are liable to be damaged by the snow and require no small amounts of tending and protection. The number of the species of trees belonging to these regions is over 60 but the more important of them are *Hinoki, Sugi, Hiba, Koya-maki, Sawara, Nezuko, Momi, Tsuga, Ira-momi, Bara-momi, Himeko-matsu, Chōsen-matsu, Gogo-matsu* and *Kara-matsu* in the Coniferous class; and *Keyaki, Sachidamo, Katsura, Ōnara, Sawa-gurumi, Tochi, Kurumi, Nire, Kuri, Kiwada, Harikiri, Enju, Hakoyanagi, Doro, Hōnoki, Kashiwa, Sakura, Buna* and *Kaede* in the Broad-Leafed class.

Hinoki, Fir (Chamaecyparis obtusa, S. et Z.):—The timber is soft, close-grained, strong and tough and has a peculiar scent. Ranks first among Japanese trees for the number of ways in which it can be utilized, being used for building purposes, and as an ornamental wood and in engineering work and naval architecture; also in bridge-work. Grows in the southern half of Honshū, Kūshū and Shikoku. In the provinces of Kii, Yamato, Musashi, Tōtōmi, and Tajima, we find extensive forests of this tree. The natural *Hinoki* forest in Kiso belonging to the Imperial Household is one of the three best forests in Japan. The natural forests in the Koya mountains in Kii are noted for producing big *Hinoki* tree. The home of this tree is in the central

portion of Honshū in regions from 550 to 1,400 metres from the sea level, but where the atmosphere contains a suitable proportion of moisture, it is found in well-formed woods, either pure or mixed, in both higher or lower districts.

Hiba (Thujopsis dolabrata, S. et Z.) :—This tree together with *Hinoki, Sawara, Nezuko* and *Koyamaki* formed the so-called *Goboku* or "Five Trees" under the old régime and enjoyed careful protection at the hands of the feudal authorities. Mostly regenerated naturally; rarely planted. The Aomori districts in the north are noted for having pure woods of *Hiba*. The State forests in the Tsugaru and the Nambu peninsula are nearly pure woods of *Hiba* with a slight intermixture of *Buna*. There are extensive forests of *Hiba* mixed with other coniferous trees, such as *Himeko-matsu* and *Sawara*, in the mountains on the northern frontier of Rikuchū, in Goyosan in Rikuzen and in the mountains in the Tone districts, Kōzuke. The wood grows slowly and the year-rings are extremely narrow. The timber is of compact nature and rich in resisting power; therefore used for building and engineering purpose. It has lately come to be in great demand for use as railway sleepers, its durability being peerless. The great pillars of the Forestry Building and those of a part of the Agricultural Building of the Fifth National Industrial Exhibition are of this wood.

Sugi (Cryptomeria japonica, Don.) :—Very widely distributed being second only to red pine among the conifers in this respect. This tree wants light and does not grow in shaded places. Grows well in soils having a suitable amount of moisture. Capable of speedy and considerable growth, some specimens being found of such huge dimensions of 2 metres in diameter and 40 metres high. In suitably moist soils and atmosphere this tree will form woods throughout Shikoku, Kūshū and Honshū and even in the southern provinces of the Hokkaidō. Splendid specimens of natural pure woods of *Sugi* are found in the Nagakizawa State forests in Akita, while specimens of artificial forests are seen in the private forests in the Yoshino districts in the province of Yamato. The natural forests in Yakujima in Kūshū are celebrated for producing timbers having very fine and pretty grains known as *Uzura-moku*, partridge grains. The wood is light yellow with a shade of red; used very much like

Hinoki for the various building and ornamental purposes and in the manufacture of tools and utensils.

Sawara (Chamecyparis pisifera, S. et Z.) :—

Nezuko (Thuya japonica, Maxim.) :—

Koya-Maki (Sciadopytis verticillata, S. et Z.) :—Naturally these trees are always found in mixed woods; they are never met with as pure woods. In Kiso and in the Koya mountains in Kii there are natural woods of these trees mixed with *Hinoki* and other coniferous species. They are also found in large groups in the provinces of Yamato, Bungo, Satsuma, Ōmi, Iwashiro, Shimotsuke and Uzen, 900 metres to 1,800 metres above the sea-level. The timber of *Sawara* and *Nezuko* is of pretty appearance, but being soft, light and easy to split is mostly used as boards and planks by joiners and carpenters. *Koya-maki* grows extremely slowly and its timber being close-grained and containing some resinous substances is very durable in water. It is therefore valued for making water-pails and for use in earthwork engineering.

Momi (Abias firma, S. et Z.) :—Quite widely distributed being always found in the primitive mountain forests in the southern provinces of Honshū, Kyūshū and Shikoku. It is a shade-bearing species. After its middle age it grows very fast and in well-adopted soil forms perfect trunk. The timber is light and coarse and undergoes much expansion and contraction. It is therefore inferior to the timber of other species having needle-shaped leaves for ordinary purposes. But the length of its fibres and the possibility of cleaning them by bleaching have caused it to be used almost exclusively by wood-paper manufacturers, thereby bringing about a large demand for it. Excessive felling has followed and it is feared that the tree may gradually become almost extinct saving rare specimens here and there which will become objects of mere curiosity, unless steps are taken for its artificial regeneration. The boxes and cases exported to foreign countries from Japan are mostly made of this wood.

Tsuga (Tsuga siebodii, Carr.) :—In distribution similar to *Momi*. mostly found in woods mixed with *Momi*. Growth very slow; the timber being of compact structure is highly appreciated for ornamental purpose. Used like *Momi* as material for paper and box making.

Himeko-Matsu (Pinus Parviflora, S. et Z.) :—Is found in woods

in regions between places elevated 1,600 metres above the sea on the Kōtsuke-Echigo boundary-line and the mountain ranges of Iwashiro. Nearly pure woods are seen in the provinces of Toshima and Shiribeshi, Hokkaidō.

Goyo-matsu (Pinus pentaphylla, Mayr.) and *Chōsen-matsu* (Pinus Koreinsis, S. et Z.) are found overstepping from the Temperate regions into the Arctic. Rarely met with in the mountains in the central and northern sections of Honshū. The *Goyo-matsu* is found in the form of a quasi-pure forest in the province of Tokachi, Hokkaidō.

Bara-momi (Picea polita, Carr.) and *Ira-momi* (Picea bicolos, Mayr.) are very limited in distribution being only found to any great extent at on the sides of Mount. Fuji, at the height of over 2,000 metres above the sea-level. Besides they merely grow in solitary clusters on the high mountains. As they possess the useful characteristic of making reasonable growth even in poor and shaded land, they have drawn the attention of the Government Authorities as probably being suitable species for making protection forests with the special object of the preservation of the soil. The growth of these trees is very slow and the timber being very soft, is inferior to that of other coniferous species for ordinary purposes but is suited for making ceilings and also water-free articles of furniture.

Kara-matsu (Larix leptolepis, Gord.) :—Found in natural woods at Fujisan, and Asamayama and the Azumi districts in the province of Shinano. Grows wild in the mountains of Nikkō; nowhere else found in natural woods. It is a decidedly light-demanding species and thrives in dry soils of volcanic origin. The timber is tolerably hard and durable and valued for house-and ship-building purposes, as telegraph poles, in civil engineering work and for other uses. The tree grows very speedily and is free from the ordinary dangers incurred in sylviculture. Thrives well in any soil however poor it may be and gives good results. Hence it is growing in popularity in the whole of Honshū and in the Hokkaidō.

The broad-leafed trees of the Temperate regions, the principal of which is *Buna*, are very numerous and occupy more than one-half of the area under forest. They are found everywhere in great luxuriance, but single species are rarely seen in the

form of a strictly pure forest, although *Konara*, *Kashiwa*, *Ōnara*, *Kaba*, *Koro-no-ki*, *Han-no-ki*, *Katsura* and *Buna* are widely distributed throughout Honshū and in the southern half of the Hokkaidō in almost unmixed woods. On the other species grow in irregular intermixture with other broad-leafed or needle-leafed trees, sheltering and protecting each other so as to preserve the original sylvan features. Below are given chief species of sylvicultural importance :

Keyaki (Zelkowa Keaki, Sieb.) :—

No other broad-leaved species is adopted to so many ways of utilization and so highly valued as *Keyaki*. This species is found everywhere in Honshū, Shikoku and Kyūshū, but rarely in pure woods. It grows to enormous dimensions in woods intermixed with shade-bearing species of the broad-leaved family. Loves calcareous soils and the south-eastern sides of mountains, where, when the soil is suitable, it attains perfect growth. Found wild below 1,600 metres in Shikoku and Kyūshū and under 750 metres in the northern section of Honshū. Kiso, Izu, Tōtōmi, Kii, Hiuga, Yamato, Ise and Ōu are especially noted for producing big *Keyaki* trees. Requiring, as it does, a great many years for its full growth, it is unsuited for planting by private sylviculturists with small capital. The Government is, however, making their best endeavours to preserve and increase the areas under this species. The timber is very strong, hard, and lustrous; highly valued for building and ornamental purposes; also in naval architecture. *Keyaki* timber which has *Jorin* (ring-like), *Uzura*, (partridge feather), *Tama* (gem) or *Botan* (peony) grain is used for making valuable articles of furniture. *Keyaki* wood is a favourite materials for sculptors, for, notwithstanding its hardness, it is easy to work.

Buna (Fagus sylvatica, var. Sieb., Maxim.) :—Occupies the largest space next to *Akamatsu*, red pine. Found in the hills and mountains in the northern section of Honshū, in the elevated districts in the southern section of Honshū, Shikoku and Kyūshū; also in the provinces of Ōshima, Shiribeshi and Iburi in the Hokkaidō. Mostly found mixed with *Ōnara*, *Katsura*, *Shioji*, *Itaya-kayeda* and other trees, but in Aomori, Iwate, Echigo and Yamagata pure woods of vast dimensions are seen in the mountains over 300 metres above the sea. As a firewood and charcoal producer, this is one of the

most important species. The timber is little used for building purposes. The Osaka, Ani and other mines have large *Buna* forests for getting supplies of fuel. This tree grows well in the shade and having the characteristic of growing even when extremely old, it sometimes attains an enormous size. The Ainos in Old Japan are said to have made log-boats of this tree.

Sachidamo (Fraxinus mandshurica, Rupr.) and *Katsura* (Cercidiphyllum japonicum, S. et Z.,) :—The only broad-leaved species affording building timbers. Also used for ornamental purposes. Very widely distributed, found in all parts of the Hokkaidō and in the mountain valleys in the northern section of Honshū. Thrives best in level ground; excellent pure woods of *Katsura* are seen in the neighbourhood of the Osarugawa in the province of Iburi. The timber is soft and compact and possesses elastic powers of a durable character. Hence extensively used of late as railway sleepers; it is chiefly such sleepers that are exported to North China.

Inu-Enju (Cladorostis amurensis, var. floribunda, Maxim.) :—Found in the northern section of Honshū and in South Hokkaidō mixed with other broad-leaved species. The timber is very pretty and is used for making valuable articles of furniture. Exported to China and Korea as railway sleepers.

Kurumi (Juglans sieboldiana, Maxim.) :—Grows in rich mountain valleys and on low lands in the central and northern sections of Honshū. On the plains of Ishikari and Tokachi in the Hokkaidō, it is found in woods mixed with *Sachidamo*, *Katsura*, *Nire* and other trees. The timber is tenacious and not liable to bend either way. Hence in demand for making railway carriages and for highly ornamental purposes. No other wood is used in this country for rifle-stocks.

Harikiri (Acanthopanox ricinifolium, S. et Z.) :—Grows in wet soils in Shimozuke, Iwashiro and Iwate; and everywhere in the Hokkaidō. In rich soil attains considerable dimensions. The timber is somewhat hard and lustrous with well defined grain and whitish in colour. Prized for ornamental purposes and for making articles of household furniture. In great demand as railways sleepers like *Sachidamo* and *Katsura*.

Kashiwa (Quercus dentata, Thumb.) and *Ōnara* (Quercus crispula, Bl.):—Found in wet places between the mountains in the Nasu and Ōu districts in Honshū and everywhere on the plains of the Hokkaidō. In Honshū rarely found in pure woods, always growing mixed with other broad-species, but on the plains of Tokachi and Ishikari in the Hokkaidō, there are extensive pure woods of these trees. The timber of *Ōnara* is widely used as sleepers. This species is one of best producers of firewood and charcoal. *Kashiwa* contains tannin in its bark and is used in curing skins. Otherwise it is not used, except as firewood.

Hoko-yanagi (Populus tremulus, var. villosa, Mesm.) and *Doronoki* (Populus balsamifera, var. suareobenus, Send):—The two species are most valuable wood in Japan for making match-sticks. The former grows all over Shikoku, Kyūshū, Honshū, and as far north as Hokkaidō, while the latter thrives well in the north-eastern districts of Honshū and Hokkaidō. The two species easily grow in sandy wet soil. They are found forming uniform forests of perfect sylvicultural aspect in the vicinity of Monbetsu and Shari districts of Kitami, Kami-kawa district of Ishikari and Moyori, of Tokachi, all in Hokkaidō. The trees are fond of light and cannot thrive in shade. Under favourable condition their growth is very rapid, and after 25 years from germination they easily attain the height of 6 metres. They can be reproduced by seeds or layer or by dividing the roots. They are being planted extensively in private forests.

Kuri (Castanea vulgaris, var. Japonica, D.C.):—The extent of the growth of this species is exceedingly wide. In Kyūshū and Shikoku and the western parts of Honshū the tree imparts a special aspect to the forests growing on the sides of high hills or on hillocks. In places north to the middle section of Honshū, it grows well on the plains and produces valuable timber. However the specie rarely forms any extensive pure forest of its own, and generally grows mixed with *Buna*, *Hiba*, *Kiwada*, *Katsura*, *Kayede*, *Sawakurumi*, etc. In the Kobinata State forest found in Tone district, Kōzuke, and in Hiraga district, Ugo, it is found forming pure forests of no small extent. The timber of this tree is extremely hard, can stand wet, and on the whole lasts long. It is therefore preferred for railway sleepers to any other tree growing in Japan.

The sleepers used in the Government Tōkaidō railway and in the Hankaku railway are made from the timber of this tree.

Sakura (Prunus Pseudo cerasus, var. spontanea, Maxim.), *Kaede* (Acer palmatus, Thumb), *Hōnoki* (Magnolia hypolenea, S. et Z.) :— These are not trees of any great sylvicultural importance, and very rarely do they form pure forests of their own, growing mostly, as they do, amidst conifers or broad-leaf trees. However they are of importance for certain special purpose, and as the supply is hardly sufficient to meet demand, their price is comparatively high. In view of this fact, both in State forests and private forests, they are being planted side by side with trees of other sorts.

Tochi (Æsculus trebunata, Bl.), *Nire* (Uluno campestris, var. Learis, Planch), *Hannoki* (Alnus Japonica, S. et Z.), *Toneriko* (Fraxinus Bungeana, D.C.), *Saikachi-enoki* (Gleditechia Japonica, Miq.), *Yaaagi* (Salix acutiporia, L.) are deciduous broad-leaved trees not particularly possessing any great sylvicultural value, and they are grown in this zone for the purpose of giving protection to primary trees or of maintaining the fertility of forest-land.

Forests in the frigid zone occupy in the northern half of Hokkaidō and the Kuriles those places where the average yearly temperature does not exceed 6°. In regard to altitude distribution, the zone comprises in Formosa those places that are not less than 3,500 metres from the sea-level, and in the middle section of Honshū all places 1,800 metres above sea level.

As the forests of this zone, except those in Hokkaidō, are located in high altitudes, with poor soil, and subjected to strong winds, the trees are generally too stunted in growth to be of any value. In Hokkaidō, however, conifers grows luxuriantly and many primitive forests not yet explored are found. The principal trees in these forests are *Todo-matsu* (Abies Sachaliensis, Mast.) and *Yezo-matsu* (Picea ajanensis, S. et Z.). Starting from altitudes measuring 450 metres in the southern parts of the island, these trees are found growing luxuriantly in the mountains of Ishikari, Teshiwo, Tokachi, Nemuro, and Kitami, and lastly in the island of Kunajiri. The Imperial Household forests at Tarunai, Uryu, Kussharo, and the State forests at Otoneton, Shari and Kunajiri practically consist of extensive pure forests of these trees, presenting a highly regular

aspect. The timber of *Todo-matsu* is in large demand for architectural and earth-works, and is indeed most valuable of all the timbers produced in Hokkaidō. The wood is, however, coarse-grained, and light and is liable to bend when exposed alternately dryness and humidity. Rather close-grained and resinous, the wood of *Yezo-matsu* is in great demand for architectural work.

Akaezo-matsu (Picea Glehui, Mast.):—Though valuable as timber next to the two foregoing species, this tree does not form a forest of its own, but grows mixed with other trees. Is in greater demand than the other two, and commands a higher price. The wood is close-grained and suited for architectural work.

In Etrup and Shikotan of the Kuriles, a species of larch, scientically termed Zarix daburica, var. Japonica, Max. is found growing, and exposed to inclement climate forms a pure forest of good aspect. The wood is reddish, hard, and well stands wet, and is therefore used in ship building, earthwork and furniture-making.

Shira-kaba (Betula alba, var. vulgaris, D.C.), *Yama-hannoki* (Alnus incana, var. glanea, Ait.), *Nagakamado* (Pirus aucuparia, var. Japonica, Max.) are some of the deciduous broad-leaved trees that are found in this zone either as pure forests or scattered among other trees. They are, however, of small sylvicultural value, and are generally used as firewood by miners or fishermen residing in the vicinity.

There are many other trees growing in the respective zones, but the principal species are generally confined to those above described. As found in natural growth, they either form pure forests or are mixed with other trees. In general conifers occupy in the southern districts elevated places, while forests on the level mostly consist of broad-leaved trees. In the northern districts conifers cover mountain slopes, while on their top and foot broad-leaved trees predominate.

On the whole the different classes of forests make the following rates in the forest areas of Japan:—

Conifer forests	21%
Broad-leaved forests	25%
Conifer and broad-leaved forests	45%
Thinly-stocked or blank areas, etc.	9%
Total	100

Bamboo areas, though forming a feature in our forest system and sufficiently profitable in exploitation, are still extremely limited in extent; nor do they show any sign of enlargement in a near future. A description of them has, therefore, been omitted here.

The growing extension of *Aka-matsu* forests recently in Honshū, Shikoku and Kyūshū tended to raise the relative ratio of conifer forests to broad-leaved forests, and this tendency is further accelerated by the greater demand, in consequence of the development of industry and business, for such conifers as *Sugi*, *Hinoki*, and *Karamatsu* which are being planted extensively. In the State forests the relative proportion of the different kinds of forests stand as follows :—

Conifer forests	11%
Broad-leaved forests	28%
Conifer and broad-leaved forests	49%
Thinly-stocked or blank areas, etc.	12%
Total	100

The forest-areas devoted to conifers will attain before long the proper ratio to which they are entitled from increasing demand upon them.

In the Imperial Household forests, owing to the greater attention paid to forest aspect, the relative proportion is more satisfactory, as :—

Conifer forests	23%
Broad-leaved forests	24%
Conifer and broad-leaved forests	49%
Thinly-stocked or blank areas, etc.	4%
Total	100

Both in the State forests or Imperial forests the principal trees are, in conifers, *Aka-matsu*, *Tsuga*, *Todo-matsu*, *Sugi*, *Hinoki*, *Momi*, etc. ; while, in broad-leaved trees *Buna*, different varieties of *Nara* and *Kashi*, *Kaba*, *Kuri*, etc. constitute principal species.

III. ADJUSTMENT OF FORESTS.

History :—The work of forest adjustment was attended to by the Court as early as the Konin era (the beginning of the 9th century), when the Emperor of the day issued a proclamation restricting the undue felling of trees and ordering in general the due protection of forests. From about that time till the advent of the Tokugawa Regency, during which period the country was far from enjoying peace and prosperity, the sylvicultural business fared no better than other industrial affairs, that is, it suffered much from neglect and devastation. A marked change for the better took place with the establishment of the Tokugawa régime, and after about three centuries of this iron administration something like a regular system for protection of forests had been evolved. Different systems prevailed, indeed, in different daimyiates but they all had this feature in common, that is to say, they originated from necessity of military defense. Stern rules characteristic of a military despotism were therefore enforced for the protection of the forests. It is true that even then forests were divided into utilization forests and protection forests, but even in the case of the former more or less severe restrictions were always enforced. The existence of protection forests was extraordinary both in kind and extent. The forests comprised forests at the headwaters of rivers, the forests planted to prevent landslips, the forests planted to protect against damage from heavy snowfalls, the forests intended to give shelter to the water and to invite the collection of fish in it, and forests of other descriptions. For the protection of special kinds of trees the rules enforced were extremely strict. The prohibition trees differed according to places. *Hiba* tree was protected in Aomori, *Sugi* in Akita, while Kiso had "five prohibition trees," Kii "six," Awa "seven" and Kumamoto "three." This prohibition treatment gave rise to the development of the work of utilization and adjustment, and by keeping careful forest records and by adopting a conscientious system of rotation each daimyiate made it a point to secure the constant supply of valuable kinds of timber within its own borders. Whatever advantages Japan now enjoys in the matter

of forests, she must be said to owe to this jealous guard kept over her forests of old by the feudal princes.

The protection of the forests having been maintained by despotic rules as was the case in France before the Revolution,—rules which did not originate in any regular economic principles, the withdrawal of those rules on the advent of the Restoration was followed by a reaction, and thoughtless deforestation was the consequence. The Meiji Government lost no time, however, in taking measures calculated to check this alarming state of affairs. Those measures were, however, not quite calculated to cope with the trouble, and at best could but partially remove it. One of the most serious inconveniences that confronted the Forest authorities was the absence of definite boundaries between one State forest and another or between a State forest and a private forest, so that while in the former case the accurate determination of forest areas was not possible, in the latter case the State frequently claimed forests belonging to the other owners. Again illicit felling or felling due to mistake frequently took place, thereby complicating indescribably the work of proper control. It was primarily with the object of removing this fruitful source of trouble and of thoroughly adjusting the boundaries, that the authorities started in the 23rd year the first regular programme of treatment. This programme is to be completed in 15 years ending the 37th year. To meet the expense necessary for carrying it out the Government decided to disburse, besides regular expenses, a sum of 855,851 *yen* on account of extraordinary expense. The programme aims in accomplishing the following objects :—

1. To inquire into the condition of those State forests and plains measuring altogether 6,600,000 *cho* which are irregularly scattered over the country, to carefully classify them into those that should with benefit be maintained as State property and those that should be transferred to private property; also to clearly define the jurisdiction limit of supervising offices by determining the relative convenience of control and relative economic advantages.
2. To clearly define the boundary between State forests and to provide against illicit felling and felling by mistake.

3. To ascertain the exact area of those State forests measuring 1,380,000 *cho* which are of greatest economic importance and to prepare accurate forest maps.

From its very nature the work embodied in the foregoing clauses requires a long space of time, but at the same time the elaboration of a definite sylvicultural system demands the speedy completion of the work. It was a very judicious measure, therefore, on the part of the authorities that the programme was adopted as a continuation work so as to preclude it from being altered by any new arrangement that might be made in future.

The working of this programme, which is to be completed on the next fiscal year, has been highly satisfactory and has imparted for the first time a firm basis of operation to Government forestry policy. The sale of State forests and plains, the openinig up of some of them to exploitation by private individuals either by being brought under cultivation or converted into pastures, the elaboration of a high rotation system for other kinds of forest-land—all these and many other things are the fruit of this work of the first programme, which may therefore be said to have inaugurated a new era in the economy of State forests in this country.

The work started by that programme has been continued by the so-called second programme which came into operation in the 31st year with the creation of a Forest Special Account Fund. The work aimed at in this new programme is one of the highest importance, being nothing less than the adjustment of the irregular condition of State forests, the expansion of the limit of exploitation, the increase of fertility of forest-land, in short the thorough re-adjustment from the very basis of the economic system of State forests. Stated in a concrete form the work involved in this programme consists in determining the forest and plains that may no longer be kept as State property, in the final survey of State forests and plains which should be kept as such, and in the elaboration of plan for working such forest and plains, planting open spaces undertaking engineering works relating to forests, purchasing forests required, and in short all those matters necessary for deter-

mining the system of exploiting State forests and plains. The fund devoted for completing this programme was fixed at 23,025,053 *yen*. The fact that the programme involved such a big outlay at first deterred the authorities from adopting it, but the difficulty was solved by setting it apart as a special account with the revenue supplied by the proceeds of the sale of forests and plains which may no longer be kept as State property. The measure embodying this programme obtained the approval of the Imperial Diet and was finally issued as law in the 31st year.

The programme extends over 16 years ended the 46th year (1913). To enumerate here principal points in that programme, the authorities have to dispose of during the ten years ended the 41st fiscal year of 741,577 *cho* scattered over 505,535 places and to derive from the sale 2,302,200 *yen* a year, or 23,022,513 *yen* in ten years. The outlay for the same period is put at 880,170 *yen*.

The programme also includes the work of final survey of such State forests and plains whose survey had been left incomplete in the preceeding first programme. The work commencing in the 44th year is to be completed in the 48th year (1915), the forests and plains all to be maintained as State property, measuring 5 million *cho* approximately. For triangular surveying, the disbursements for the ten years are estimated at 468,439.45 *yen*, for contour surveying 4,179,636.45 *yen*, the two making 4,648,075.90 *yen*. The working plan involves an expenditure of 2,355,575 *yen* and is to extend from the 32nd fiscal year to the 41st year. The plan contemplates giving the required treatment to 2,112,000 *cho* of forests and plains which urgently needs that treatment, the purchase of 90,000 *cho* of privately-owned utilization forests intermingled with State forests and also 50,000 *cho* of privately owned protection forests. This purchase is to be effected in eight years ended the 40th year, and is estimated to require an expenditure of 5,632,400 *yen*.

The renovation of blank areas receives proper attention. A sum of 3,373,921.29 *yen* is to be appropriated for preparing

nursery-beds measuring 550 *cho* and capable of growing 537,-630,000 young plants. From 35th to the 43rd fiscal year 101,000 *cho* fare space will be planted, while 1,388,280 *yen* is devoted on account of planting in places where, owing to the washing away of the surface soil and the exposure of the hard works below, afforestation is impossible unless some provision to prevent drifting is made. The places to be thus dealt with cover an area of 5,000 *cho*. Further, 39,000 *cho* which had been left to renovate themselves by natural processes which were afterwards judged to capable of being improved by proper tending, will be attended to from the 32nd to 41st year, 624,000 *yen* being devoted for the purpose.

Provisions for providing against forest fires will be completed in ten years ended the 43rd year at an outlay of 222,816 *yen*. Of the protection works 3,393,164 square metres will be permanent and 2,827,637 square metres temporary. Other adjustment works comprised in the programme are the construction of forest-roads extending altogether 10,600 metres, the remvoal of rocks measuring 192,000 cubic metres that are obstructing the passage of wood conveyed by river. This work which is to be completed in five years ended this fiscal year will involve an expenditure of 1,081,127.50 *yen* on account of the road-construction and 194,400 *yen* on account of the removal of the rocks.

The completion of this important programme mainly depending on the sale of unimportant State forests and plains, it is evident that the authorities must carefully regulate this sale so that all the different undertakings in the programme may be regularly carried out according to the prescribed plan of operation.

The result of the programme will revolutionize the economy of the State forest. Not to speak of an addition of 50,983 *yen* to the Revenue on account of the Land Tax accruing from the forests and plains transferred to private ownerwship, the adjustment effected will considerably diminish the managing expenses and will improve the efficiency of the work of control. The revenue from the increased felling is especially important,

it being estimated that after the 43rd year the revenue will be four times what it is now. This means an addition of over 3,310,000 *yen* to the State Revenue. After the lapse of one hundred years, by which time the renovated forests, even supposing that the market price will remain as low as it in now, will have grown to 66 million *yen* a year, about a quarter of the total amount of Revenue to-day. That this forecast is by no means a sanguine one is proved by the experience of the four years that have elapsed since the commencement of the programme.

Investigation and adjustment of State forests:—The investigation into the existing condition of State forests in Shikoku, Kyūshū and Honshū where there are 719,473 such forests. The investigation is carried out by the officials of Major Forestry Offices with the object of selecting those forests which should be kept as State properties and those which may be advantageously sold to private individuals. The selection is made by keeping the following points in view:—

1. Those which exist in a lot of over 50 *cho* or in different lots found within the limit of one town or village or within the distance of not more than 2 *ri* from each other, and which can permanently carry out independent sylvicultural work.
2. Those which exist in a lot of less than 50 *cho* but which can without any trouble be managed in consequence of the existence in the same district or in a neighbouring district of a State forest or forests measuring over thousands or hundreds of *cho*.
3. Those which, though existing in a lot of less than 10 *cho* or are economically unimportant, are useful for constructing forest-roads, for the transport of wood or for storing wood, building official residences of foresters or for other matters connected with State forests.

The forests coming under any of the foregoing conditions were to be reserved as State property, and the others not satisfying them to be disposed of. Also forests or plains necessary

to the farmers living in the neighbourhood for getting fodder or grass for manure were to be transferred to private ownership, provided no particular necessity existed for keeping them as State property.

The work of investigation was begun in the 23rd year and completed in the 27th, with the result that of the State forests and plains measuring altogether 8,095,916 *cho*, 7,354,343 *cho* were judged fit to be retained as State property and the remaining 741,573 *cho* were judged unfit for that purpose.

The proceeds obtained by disposing of those unimportant forests and plains are to be used as funds for carrying out the second forestry programme, mentioned above, that is to say, the forest exploitation as work of special account.

However the selection made was afterward judged to be not entirely satisfactory it was found in fact to be unsatisfactory both in respect of omission and of commission, while with the progress of the times, it became necessary to take into a greater considerations than before the question of the public peace and order. It was decided in the 32nd year to make thorough second investigations based on advanced principles of forest exploitation. The rules to guide the investigation were drawn up and the work was started afresh in that year. The rules were elaborated with great care, so as to make the investigations as thorough and as complete as possible. For instance the touching rules cover matters on final measurement of forest-land and the determination of its price, also lay special stress on making the selection of important and unimportant State forests, directing the officials who have charge of the business to investigate, in making the selection, the contents of the forests, the relation of forest economy, the relation with the interest of local districts amidst which the forests exists, and such matters. As to the exact extent of the forests and plains to be placed under protection in accordance with the Drift-sand Law and in consideration of historic importance or of scenic beauty, the officials are ordered to get the approval of their superiors before they came to a final decision. The rules also take local interests into due consideration and in disposing of unimportant forests or plains preference is to be

given, so far as circumstances permit, to the claims of the local people or villagers who had any special claim on such forests or plains. The disposal of unimportant forests and plains is to be completed in six years from the 32nd year, and during the three years from that year to the 34th inclusive about 51,756 *cho* in 16,113 lots were sold, and the sum of 5,199,198.403 *yen* was realized by that transaction.

Demarkation of boundaries and measurement of State Forests and Plains:—The exact measurement of forests and accurate forest-maps being absolutely indispensable for conducting scientific treatment of forests, the Government issued in the 17th year Notes relating to Boundaries of State forests, and caused the local offices to undertake the demarkation of the boundaries and the measurement of the forests. The formulæ set forth in the Notes were too simple to render the result of the work to be of any great use. A similar work undertaken in connection with the first programme of forest adjustment did not, though it was more elaborate, prove quite satisfactory. This was principally due to the fact that for special reasons, the work of demarkation was undertaken independently of the work of measurement, and because, owing to some misconception on that part of the people, it occasioned great troubles which necessarily retarded the progress of the business. The consequence was it was decided to adopt a regular method of carrying out the work of demarkation with that of measurement, and in the 27th year an instruction was issued to that effect. The mode of measurement was improved in the 30th year and again in the 32nd year, and the system elaborated in the latter year is now in force. That system divides the work into three divisions, viz., demarkation of boundaries, triangular surveying as applied to forests, and contour surveying. On the completion of the work, foundation maps of working plan are to be drawn on a scale of 1/5000.

The final survey carried out from the 23rd to the 34th year according to the foregoing system reached in extent to 29,289 kilometres and 761,349 *cho* 3 *tan* 5.22 *se* in measurement. There remain 2,850 kilometres for which the work of contour surveying has been accomplished but whose measurement still remains to be completed.

ELABORATION OF WORKING PLAN:—The treatment of forest without any definite plan is inconsistent with the interests of forest economy and in the 23rd year a provisional working plan was therefore drawn up to be put in practice till a permanent plan has been elaborated. The provisional plan was merely intended to provide some directions with regard to felling. But with the progress of the first adjustment programme it was possible to apply a more scientific and permanent plan, at least in the case of these forests for which the work of adjustment had been completed. The forests qualified to be dealt with under this permanent plan were those in Ehime, Fukuoka, Kagoshima, Hiroshima, Ōsaka, Ishikawa, Akita, and a few others. The notes drawn up for forming the plan were to this effect:—

1. That the system of sylviculture should be maintained in as perfect a condition as possible and that the utmost quantity of timber possible should at the same time be obtained.
2. That a proper care should be exercised in planting and felling, and provisions should be made against damage of wind and fire and insects.
3. That reserves should be provided to counteract the diminution of the crop incidental to such damage.

In the elaboration of the plan a minor forestry office was regarded as a unit of economy, and the determination of a yearly cutting volume was based on the area to be cleared and the crop to be obtained. With the progress of the work of adjustment and the greater light bestowed, in consequence, on the condition of the forests, it was possible, especially as a result of the development of facilities of communication, to draw up a plan of a more perfect description. In the 32nd year and again in the 34th the necessary amendment was effected in the principle of the working plan. The amendment was chiefly intended to adopt the plan as well as possible to the conditions of a district and of a forest. It was also decided that the improvement of the irregular aspect of the forests should be made in a limited space of time. In short the plan was made to cover all matters relating to the utilization of timber and the renovation and regeneration of forests, and was intended to procure

the maximum income and produce crops best calculated to satisfy the demand on the market.

The permanent working plan as at first elaborated was first put into operation in the 26th year and 58,916 *cho* 5 *tan* 9 *se* was adjusted till the 32nd year, while from the time of the carrying in effect of the second adjustment programme to the end of the 34th year the forests measuring 30,945 *cho* 7½ *tan* received similar treatment, making altogether 89,862 *cho* 3½ *tan*.

Adjustment of Imperial Household forests:—The forests belonging to the Imperial Household having been originally transferred from State forests, the conditions requiring adjustment and the elaboration of working plan were practically identical with those of the State forests. As in the case of the State forests, therefore, the work of selecting those forests to be retained and those to be disposed of was started in the 25th year and completed in the 31st, while work of drawing up permanent working plan was commenced in the 31st year. The final survey was carried during the nine years ended the 34th year for forests extending in aggregate length to 7,067 kilometres and measuring altogether 332,482 *cho* 2.21 *se*. The working plan for 147,205 *cho* in the forests at Fuji, Kiso, Amaki, and Watarae has been completed.

IV. SYLVICULTURAL ECONOMY.

Prior to the Restoration the management of forests was conducted more in view of national economy and of subserving the common interests of both Government and people, and less with the object of turning the forests to immediate account. With the Restoration this state of things underwent a radical change, as will be described later on.

Forestry economy naturally presents a distinct aspect according to the owners of the forests. For instance in remote mountainous districts abounding in forests and scanty of arable lands, the inhabitants being obliged to subsist mainly on wood work and all other occupation relating to the utilization of wood, the kind of trees that are grown generally consists of

conifers producing valuable timber. Coming a little downwards towards the plain we find that object of forests is mainly directed to supplying firewood and also timbers useful for wood industry. so that in such districts the forests are principally composed of broad-leaved trees capable of being utilized in less time than conifers. In the last stage, that is plains which are full of arable fields and are teeming with inhabitants, trees that are planted are those of comparatively quicker growth, such as *Sugi*, *Aka-matsu* which can be turned to the greatest account in the shorted space of time. Indeed as the style of buildings and the mode of living in Japan create a large demand for wood the planting of trees in the plains often proves a highly profitable piece of business. For instance the woods at Shimo Tōkaidō situated not far from Tokyo and those at Ikeda near Ōsaka, both of which are producing a large quantity of charcoal, are known to yield a profit twice as much as that of an ordinary arable field of the same area. Bamboo woods which also yield a good return are another profitable kind of tree-planting carried on in the plains. The working plan and economy of forests differ according as they are owned by private individuals, by the State or by the Imperial Household, for it is naturally expected that, in the forests belonging to the State or to the Imperial Household, the interests of the public and of the nation should be consulted more than in private forests. Consequently the managers of the State forests do not look for speedy returns. In view of this consideration the State and Household forests have elaborated a high forest system and the felling of trees is regulated according to this special system.

Forests also present a different appearance according as they belong to the State, to the Imperial Household or to private individuals. Those belonging to the former two are generally renewed as a result of natural growth and are therefore less uniform in composition than those owned by people whose forests receive greater care, the object being to make them yield returns more quickly. The woods at Tōkaidō, already mentioned and those at Muro and Kii, are noteworthy in this respect, the profit derived from them being even larger

than the rate in Saxony, where forestry is carried on to greater perfection than anywhere else throughout the World. On the other hand, affected by this consideration of obtaining quicker returns, privately owned forests do not generally admit of high forest treatment. The State or Household forests are therefore obliged to supply that in which the other forests are deficient and to produce timber-trees and to properly regulate the cutting period. This period is generally as follows for valuable timber-trees :—

	Years.
Sugi...	80—120
Hinoki	100—150
Hiba	100—150
Aka-matsu	40—100
Kara-matsu	80—100
Kuro-matsu	80—100
Keyaki	150—200
Kusu (camphor)...	150—200

As the economy of ordinary forests does not admit of such high rotation, some of them adopt the medium rotation system, such as coppice-with-standard systems, and while utilizing the under-wood in a comparatively short space of time they leave the over-wood for utilization after it has reached the period of proper maturity. Sometimes the two-storied high forest system is adopted, and by planting light-demanding trees of quicker growth double rotation system is applied.

In regard to the selection of forestry formations, considerable care is required, for while naturally regenerated forests require reorganization on account of their irregular aspect a pure forest formation is likely to cause trouble in Japan from wind or snow and also on account of the risks from injurious insects. The result is that the planting, as it is carried on now-a-days, aims at growing two or three different species made to occupy different compartments or groups or suitably mixed together. Then again the sylvicultural system as adopted in State forests necessarily differs from that in privately-owned forests, and varies also according to locality. For

instance on mountain slopes clear cutting methods, especially of any wide area, may be inadvisable and selection cutting and shelter-wood system have to be adopted. This selection cutting being, however, inconvenient, the Government is determined to adopt, as far as circumstances permit, the clear cutting method and to entirely renovate sylvicultural formation.

The coppice-with-standard system is adopted for a special sort of forestry management, especially for small fire-wood areas worked by private individuals who are aiming at the largest possible returns at within shortest possible periods. This system is of course out of place for a forest of any extensive area.

Bamboo plantations constitute peculiar feature of our sylviculture, and is likely to prove highly profitable owing to the growing demand for bamboos. One serious drawback in the management of bamboo groves is the fact that land suited for raising any large bamboo forest is not to be found in Japan, while the more valuable varieties of this species can only be grown in certain limited parts of the country.

Coppice woods are grown to supply firewood, the demand for which is unusually large in Japan. They are generally left to renew themselves, especially when the area is extensive; but those situated in the vicinity of cities and towns are artificially tended, the species chosen for this purpose being generally *Kunuki* and *Konara.*

The treatment of protection forest consists of "selection cutting," the style of which must differ according to the character of the forest and to local conditions. The rotation should be regulated according to the following standards :—

Coppice woods	...Not less than 10 years.
Bamboo woods	...Not less than 3 years.
Coppice-with-standards ...	... { Overwood not less than 30 years, underwood not less than 10 years.
Timber-forests	Not less than 30 years.

The total area of the forests under regular treatment is being ascertained at present by the Government. At present the data for State forests alone are available, these roughly standing as follows :—

Method of Treatment.	per cent.
Clear cutting timber-forests	32
Shelter-wood timber-forests	6
Selection cutting timber-forests	24
Coppice	17
Coppice-with-Standard and Bamboo	10
Thinly stocked areas, bare areas, etc.	11
Total	100

It will be seen from the above that the timber-forests treatment occupies about 62 per cent. of the whole areas of State forests. The principal growing stock consists of *Buna* (beech) 30 per cent., *Akamatsu* 20 per cent., *Sugi* 12 per cent., *Hinoki* 7 per cent., *Kashi* (oaks) 6 per cent., *Kuromatsu* and *Hiba*, both 4 per cent., the remaining 17 per cent., consisting of conifers and broad-leaved trees. In coppice woods *Kunugi*, *Konara*, and oaks occupy about 85 per cent. while in coppice-with-standard woods *Momi*, *Tsuga*, oak and *Nara* predominate over any other species.

The methods of conversion of wood have become more and more uniform than ever. There are usually three methods, these being the outcome of customs at different forest districts and in different markets.

The Fukagawa timber yard in Tokyo is the most important depot for the wood produced at the northern parts of middle Honshū. Three different styles of designation are in vogue in this depot corresponding to so many modes of conversion. These are "Motoki," "Nami-motoki" and "Kawabe-mono." The first comes from the wood districts of Mino, Hida, Owari, Tōtōmi, Tosa, Mikawa, etc., with a standard length of not less than 14 *shaku*, the second is applied to woods coming from Kii and measures not less than 13 *shaku*, and the last one is applied to woods produced at Hitachi, Shimozuke, and Musashi with the length of 14 *shaku*. Woods coming from Hokkaidō and the north-eastern parts of Honshū are treated as "Motoki" and therefore possess measure of corresponding length. All these kinds of timber are prepared either as round logs or balks or sawn timbers. The converted timbers of "Motoki" are required to possess the legal standard, but for those of the other two kinds the allowance of 2 to 3 per cent. to the standard measure is conceded.

In general *Sugi, Hinoki, Matsu, Keyaki, Momi, Tsuga, Hiba, Yachidamo, Hōnoki, Katsura,* etc., are converted as sided logs, while *Sugi, Hinoki, Sawara, Tōhi,* etc., appear on the market as round logs.

The season of felling depends of course upon the local conditions, the convenience of transport, etc. but in general the five months beginning with the autumnal equinox and ending with the succeeding February are regarded as the felling season. In such snowy regions as Hokkaidō and the north-eastern districts of Honshū where the means of transport are imperfect, felling must be started in the beginning of the snowy season, so that the timber may be easily carried through the snow. In places where the supply of timber for industrial purposes or firewood is to be kept up all the year round there are arrangements for the uninterrupted felling of the trees.

The transport of converted timber may be divided into two stages, the first being the transport of woods from felling places to depots and the second the transport of the timber from the depots to the markets. In the first stage, chiefly owing to the hilly condition of the forest area in Japan and also to the presence in this area in many cases of water ways that have been utilized from early times for the conveyance of timber. Indeed economic considerations not yet allow in most cases the construction of special forest roads. Transport of timber along the middle and lower courses is generally, as in Bangkok and Rangoon, in the shape of rafts, till the timber reaches depots usually situated at the mouths of the rivers and therefore easily accessible from the sea.

The facilities supplied by rivers are attended in Japan by a drawback usually unknown in other countries, and that is by the necessity of suspending the river transport during the season of the planting and growth of the rice-plant, when the water of rivers is extensively utilized for the purpose of irrigating the rice-fields. Then there is another drawback in this system, for the distance between the source and the mouth of our rivers being comparatively short they are liable to become suddenly overflown in time of heavy rain. Therefore the river transport of timbers is generally done during the seven mouths elapsing between the season of the autumnal equinox and that of the spring equinox.

However in consequence of the recent increasing demand for timber and also owing to the extraordinary improvement in the means of communications, coupled with the consideration that river-transport, besides being attended by the drawbacks before mentioned, is liable to injure the quality of the timber, the tendency has gradually set in of making arrangements for land-transport and of constructing forest roads leading either to railways or high roads. These arrangements are being made in State forests, and the result has proved economically profitable.

A. MINOR FOREST PRODUCE.

The tendency to a luxuriant undergrowth in Japanese forests, principally due to abundance of moisture, gives the minor produce business a peculiar aspect, for the removal of the undergrowth is of course necessary for the sake of the forest as for that of the undergrowth if the latter is to be utilized as a minor produce.

LITTER:—In forests belonging to the State or in those kept in its custody the people living in the vicinity are generally allowed, under certain conditions, to collect gratis dead branches and leaves to be used as fuel.

GRASSES AND HERBAGE:—Though not so extensive as formerly, the custom still prevails among our people of regarding forest and woodlands as places for getting fuel and fertilizers in the shape of grasses and herbage, so that even at present there is no small number of woodlands containing only growing stock and principally used by the people for procuring manure grasses and herbage from. It is in those grass-lands that the injurious practice of burning is still carried on especially in southern districts where farming is more extensively carried on than in the northern and less inhabited districts. The practice alluded to prevails to a larger degree than elsewhere in woods growing on a soil of a granite or tertiary formations. However as it has been strictly forbidden by law, this injurious custom may entirely disappear in the near future.

MUSHROOMS:—Mushrooms are the most valuable minor forest produce in Japan, there being over ten edible species growing to a greater or less extent throughout the country. Of these the

Shii-take is the most important, and constitutes one of the staple export items, its export to China, Hawaii, Hongkong, India, etc., having reached to 860,671 *yen* in value in the 34th year. The mushroom is produced in larger quantities than elsewhere in Hyūga, Bungo, Kii, Ise, etc., where such species of wood as *Kunugi*, *Konara*, *Soro*, *Shide*, etc., which the mushroom prefers to grow on in preference to other trees abounding in the forests. Sometimes forests are prepared in those districts with the main object of producing the mushroom, and indeed this practice is often found more profitable than the ordinary wood-growing industry. In a forest intended for the growth of mushrooms a system of rotation of from 18 to 25 years is carried on and the forest is therefore managed according to the coppice system. The mushroom, moreover possesses this special advantage, of growing both in spring and autumn, and naturally there are two varieties, one being more fragrant than the other.

"Matsutake" Pine-mushroom (Armilaria edoides, Berk) grows in forests of *Aka-matsu*, especially those growing on soil of the tertiary and granite formations found in the southern districts. What is interesting about this edible fungus is that it grows most when a pine forest has come worn out by excessive utilization of its produce. Consequently with the improved forest management and tending recently introduced, the output of the fungus show a tendency to diminish. This fungus is perhaps more popular than the preceding variety as a culinary dainty. The only defect about it is its delicate texture, and the consequent difficulty of keeping it dry, as can be done satisfactorily with the "Shii" mushroom. Consequently the season of the pine-mushroom last only about a month in the autumn. The business of tinning the fungus has lately been started, and as the tinned samples are reported to have been favourably received in foreign markets, this mushroom may by proper treatment become a valuable export item like the other variety. It may be added that in the State forests in charge of the Ōsaka and Okayama Major Forest Offices the greater portion of the forest revenues is at present derived from the sale of pine-mushrooms growing in them.

Seeds, Acorns, etc.:—Seeds constitute another important minor forest produce. They are collected for various purposes. The seeds

of trees of the Rhus species are principally used for making wood-wax, which is very much in demand both at home and abroad. In the 34th year the export reached to 610,000 *yen* worth approximately. It was formerly used for making candles, but at present it is also used for giving lustre to woven goods, lubricating metallic ware to prevent rust, while in Europe it serves the purpose of sealing-wax. The trees are grown in the premises of shrines and temples, in public forests or forests owned by private individuals. They grow best in southern slopes.

The business of collecting seed to produce seedlings is also a profitable piece of minor work, especially since the tree-planting both by the Government and private people has become active. There are at present not a small number of merchants dealing in this special line of seeds. The seeds that are in larger demand than others are those of *Sugi*, followed by those of *Aka-matsu*, *Hinoki*, *Kunugi* and *Karamatsu*. The seeds of the *Sugi* and *Hinoki* are produced most at Yoshino, in Yamato, and Muro, in Kii, where a machine of improved style is used for drying the seeds. The seeds of *Kunugi* come from Ikeda, in Settsu, and Nasu, in Shimotsuke, those of *Karamatsu* from Saku district, Shinano, and the seeds of *Aka-matsu* from many places in Kyūshū, Shikoku, and other warm districts.

Further, some acorns and nuts are useful for procuring oils, the seeds collected for the purpose being those of the beech, camelia, *Shikimi*, *Abura-giri*, *Inu-gaya*, walnut, etc. The demand for those oils having been extensive lately owing to great development in the use of machinery, these seed-collectors can often earn as much as threefold of the daily wages derived from other kinds of work.

Barks:—The bark of oak trees are valuable for dyeing and tanning, and the oak forests in northern Honshū and Hokkaidō produce an abundance of these barks. All those forests are the result of natural growth and have not been artificially stocked with the object of producing the barks. The bark of alders, chestnuts, *Tsuka*, *Nara*, etc. are also used for tanning and dyeing.

Stones:—Except in forests where the removal of stones is inadmissible for important reasons, the utilization of forest-stones is extensively carried on, the demand for stones for various public

works having become unusually great recently. Of these stones, granite and andesites are most valuable among igneous rocks. The former comes most from the districts bordering on the Inland Sea and the islands situated in it, as also from Mino, Owari, and Mount Tsukuba. Tufa-rocks found in Hakone and Izu, slate-stones in Rikuzen and Kōzuke, calcareous stones in Mino are also valuable for building and other purposes. Marble-stones are produced at Kuji district of Hitachi. Then granites supply materials to the potters of Seto, Owari, while the earths used by the potters of Karatsu, Hizen, are liparite. It may be stated that the extraordinary demand for stones that has spring up of late has raised the market price to about double what it was formerly.

On the whole the revenue from minor produce is comparatively small in State forests, as may be seen from these figures: 25th year, 119,912 *yen*; 28th, 73,575; 31st, 117,268 *yen*; 34th, 158,665 *yen*. The revenue from mushrooms, barks, seeds and acorns, and stones promises to grow larger, but that from other produce is dwindling chiefly owing to the larger extent of free utilization allowed to the people.

B. INDUSTRIAL USES OE WOOD.

Though the industrial uses of wood are quite active in our country, the industry as a business is limited in many cases in scope.

Carbonisation is most important among the industrial uses of wood, work being carried on wherever a broad-leaved forest available for the purpose exists. The *Bicho* charcoal industry in Kumano, Kii, is most famous in this line throughout the country. The carbonisation industry has perceptibly been affected by the greater use of coal than before as a substitute of charcoal, but as our customs prevent us from dispensing with a large consumption of charcoal, the industry will remain an important one.

Recently the work of procuring vinegar as a by-product of carbonisation was started in several places, especially in the southern districts. Eight such workshops were on operation according to the latest inquires. Other chemical substances besides vinegar are produced at the shops.

The establishment of saw-mills of an improved style is another

sign of the development of forest industries, as a recent large demand for sawn-timbers necessitates a certain unity of dimensions and a mode of conversion most convenient for transport. According to the latest available returns there were 14 saw-mills worked by steam, with an aggregate horse-powers of 317, and six saw-mills worked by water power with an aggregate horse power of 52.

Match-sticks, though the industry is one of recent origin, form most important items of export of our wood industries, there being, according to the latest available returns, 85 workshops employing 3,552 hands. The export reached to about 7,400,000 *yen* in the 34th year. The industry is most active in Hokkaidō, where the timber from which the sticks are made abound, these being species of aspen and poplars.

The Pulp business, though of more recent origin than the preceding industry, now occupies almost an equally important place. The pulp consumed in Japan formerly came from abroad, but the steady development of the paper industry having given a powerful incentive to the pulp-making business, Japan now possesses, according to the latest available returns, five mills worked by steam power. *Shirobe*, *Momi*, *Toga*, *Todo-matsu*, *Yezo-matsu*, etc. are generally requisitioned to supply the raw material. These species are found abundantly in Japan, and as the work of regenerating the stock is attended to side by side with felling, the supply of pulp-wood in Japan may be regarded as practically inexhaustible.

Other branches of the wood industry are camphor-making, bamboo-ware making, wheelwright, joiner's, turner's, cooper's work, etc. may be mentioned.

Generally speaking the forest industry is still comparatively primitive in Japan, but it is destined to attain a great development in view of the abundance of raw materials and the increasing demand for the produce.

V. FOREST PLANTING AND TRANSPORT.

PLANTING :—The Restoration inflicted a tremendous loss on the country so far as the question of the protection of forests is concerned, and a large extent of public or private forests which had previously been carefully preserved were allowed to be felled in the most reckless manner. The effects of this disastrous craze for felling is seen to-day in the granite hills of Ōmi, Mino and in the districts bordering on the Inland Sea.

The Meiji Government hastened however to check this wasteful system of felling as soon as more urgent affairs had been disposed of and allowed it to turn its attention to the work of restoring the forestry management to its original condition. Thus in the 8th year (1875) the Government issued regulations for investigating the condition of State forests, with the special object of ascertaining the extent of the forests that had been felled while in the following year an experimental forest-planting ground was established at Nishigahara, Oji. Again, in the next year, arrangements were made for encouraging the planting of State forests by private individuals by offering them a certain percentage of the profit arising from the produce of the forests planted in this way. The system has not proved quite as satisfactorily as was expected at first, though the areas planted under these conditions have reached to about 80,000 *cho.*

Prior to the carrying into effect of the Civic Corparation System sylvicultural works other than those carried on by the Government were few and far between, and it was only in forests belonging to private individuals in Yoshino and Muro that planting was carried on in anything like a systematic manner. Subsequent to the promulgation of that self government organization in which provision about communal funds were made the idea began gradually to prevail that forest-planting was the best plan for augumenting these funds. The idea gained special force owing to the encouragement and the grant-in-aids extended by the local authorities in accordance with the provisions of the Forest Law enforced seven years later. The

result was that during the two years of the 31st and 32nd no less than 426,595 *cho* of communal areas were planted, the number of seedlings and young trees planted totalling 801,022,357. The work generally received more or less assistance from the local authorities, that assistance generally taking the form of technical advise.

Meanwhile the work of planting went on steadily in the State forests. At first it mainly consisted of regenerating the cleared areas, and therefore not much attention could be devoted to the deforested areas. In the 28th year the investigation relating to open spaces was completed, and a working plan according to the high forest system was drawn up. From the 32nd year when the second State forest adjustment programme had been completed, the arrangement of open spaces could be made more satisfactorily than before. Between the 21st year and the 31st, 43,149.9 *cho* of State forest areas received planting, while during the three years ending with the 34th year the areas similarly treated reached to 34,897 *cho*. In the former total 80 per cent. consisted of the work of regenerating cleared areas, and only 20 of planting waste spaces, while in the latter the open space work comprised 55 per cent, the remaining 45 consisting of regeneration work.

The extent work of bare land being comparatively small in forests belonging to the Imperial Household, planting is carried out mostly for regenerating cleared areas, the planted areas of this description amounting to 12,510.4 *cho* during the ten years ending with the 34th year.

The system followed in planting operations must of course be different according to the locality and other causes, always keeping in view the main object of producing a perfect forest formation capable of returning a regular revenue.

The plans pursued in pursuance of that main object are these :—

1. Natural regeneration.
2. Sowing.
3. Planting of young plants.
4. Planting in dunes and patches of shifting sand.

The first method was almost universally adopted in former times, but this is no longer popular in these days when the knowledge of forest management possessed by foresters has come highly developed, for if the method is the easiest and the least troublesome, nontheless it is not advisable in view of the necessity of effecting a thorough improvement in our sylvicultural conditions. However on steep slopes and in protection forests demanding special treatment this method is still used to extent.

Generally sowing is made to supplement the necessarily fickle operation of the method of natural regeneration. In cases when sowing is carried on by itself it is done by ridge-sowing, broad-cast sowing, line-sowing, etc. Oaks, beeches, *Akamatsu,* etc can be grown satisfactorily by sowing.

However, the planting of young trees is the commonest method in artificial regeneration, this method being adopted in the greater number of cases in State forests and in forests belonging to the Imperial Household. Generally seedlings are transplanted to the woods after they have grown two or three years in the nursery, the rate of planting per *cho* ranging between 4,500 to 6,000 young trees. As it is hardly possible to expect all of them to grow vigorously in the new soil, about 20 or 30 per cent. of the planted young trees must be supplemented in a year or two after the transplanting.

The method of planting by means of cuttings is practically identical in operation and result with the method described above, only that this method cannot be adopted for all species of trees. In Higo and Hyuga the regeneration of Benko *Sugi* has been exclusively carried out by this method, while it is similarly applied to *Doro*, *Hakoyanagi*, etc. growing in Hokkaidō, *Hiba* in Aomori and Noto.

The planting in dunes and in plains of shifting sand is adopted for areas which cannot admit of the ordinary process of planting. This special mode of planting is intended more for preserving forest areas and for restoring their fertility and less for any immediate returns. Before planting, works to prevent earth from slipping away should first be constructed, these

works generally consisting in straw-work or bramble-work or sometimes in sods. The trees selected for this particular method of planting are generally *Kuromatsu* and *Hage-shibari*, mixed at the rate of 3 of the former to 2 of the latter. Planting should be done at the rate of 14,000 to 18,000 per *cho*. Travellers travelling from Shimonoseki to Kobe by the Sanyo Railway must notice in Bizen and Harima many hills of reddish soil covered with young pine trees planted in terraces. Similar pine-clad terraces are seen along the Tōkaidō route. All these plantations have been made by this particular mode of planting.

The extent and nature of the planting operations carried on in the State forests and in the forests belonging to the Imperial Household during the ten years ended in the 34th year may be demonstrated by the following figures :—

STATE FORESTS.

	Conifers.		Broad-leaved trees.		Total.	
	Area. (cho).	No. and quantity.	Area. (cho).	No. and quantity.	Area. (cho).	No. and quantity.
Natural regeneration ...	15,235.2	—	2,032.3	—	17,267.5	—
Artificial regeneration...	41,707.2	306,516,463 6,971 koku	6,865.5	2,346,900 23,300koku	485,727	329,938,363 30,271 koku
Total	56,942.4	306,516,463 6,971 koku	8,897.8	2,346,900 23,300koku	658,402	329,938,363 30,271 koku

IMPERIAL HOUSEHOLD FORESTS.

Natural regeneration ...	—	—	—	—	—	—
Artificial regeneration ..	11,844.6	51,491,518 1,865koku	891.2	2,921,853 1,220koku	12,735.8	54,413,317 3,085
Total	11,844.6	51,491,518 1,865	891.2	2,921,853 1,220koku	12,735.8	54,413,371 3,085
Grand Total ...	68,787.0	358,007,981 8,836	9,789.0	26,343,753 24,520	78,576.0	384,351,734 33,356

As may be seen from the foregoing table, the areas planted with conifers are about nine-fold those planted with broad-leaved trees, and this predominance of conifers over trees of the other description will form a characteristic feature of our future sylvicultural system. The reason why conifers are so much preferred to the other kind of trees is because that with the present activity in the work of house building and in the carrying on of public works the timber of the conifers are more in demand than that of broad-leaved trees, so that at

present, except in retired districts most of the sylvicultural undertakings are carried out with the object of producing timbers of conifers.

As to the relative ratio of the different species planted, *Sugi* occupied about 47.3 per cent. of the entire area, pines 25.6 per cent., *Hinoki* 8.8 per cent., *Keyaki* 3.3 per cent., the remaining 1.7 per cent. being planted by two or three different species. Again, in the relative ratio of conifers, *Sugi*, *Aka-matsu*, and *Hinoki* predominated over the others, while in broad-leaved trees *Keyaki*, camphor-trees, *Kunugi*, etc. excelled the others.

This overwheling predominance of conifers is a point which ought to demand the serious consideration of all those interested in our forest policy. There is the another fact that similarly demands their attention and that is growing tendency to prepare pure forests instead of mixed forests. In fact, of the forests thus far stocked no less than 98 per cent. are of pure forests, only 2 per cent. being mixed forest. This remark applies both to conifers and broad-leaved trees. But it should be remembered that a pure forest is liable to give rise to various evils, besides being attended by difficulties in management. Indeed this point has lately begun to be perceived by foresters and others concerned, and the advantage of mixing more or less light-demanding species with conifers. At least this is the policy now pursued in State forests, where the planting of broad-leaved trees is attended to so long as circumstances permit.

The efficacy of the work of forest-planting depending essentially on the soundness of the seeds and seedlings and also on the skill of the employed labor the utmost care is exercised in those respects. In the State forests and Imperial Household forests the seeds or seedlings to be used are only those that are collected or grown on the spot. The nursery-beds attached to those forests numbered at the end of the 33rd year 407 with an aggregate area of 622.1 *cho* for State forests and 111 with an area of 101.9 *cho* for the other ferests. Then in order to procure as cheaply as possible the labor required in tending the nurseries, and also to facilitate the work of trans-

planting, these beds are located in places combining as much as possible these two conveniences. They are laid out in as many places as possible.

The seedlings grown in nursery-beds are generally transplanted after full three year's growth in the beds, and when they have attained the height of 1½ to 2 *shaku*. Some species, *Sugi* for instance, admit of being transplanted after two years' growth, while some broad-leaved species, such as *Hiba*, *Koyamaki*, etc. require five or seven years' nursery growth. Of course in places where the injury from game is apprehended even *Sugi* must be left to stand five or six years in the beds. The quantity of seeds sown and the number of seedlings grown in State forests nurseries during the ten years ended in the 34th year are given in the following table :—

Year.	Conifers.		Broad-leaved trees.	
	Quantity of seeds. *koku.*	No. of seedlings.	Quantity of seeds. *koku.*	No. of seedlings.
25th...	18,083 *koku.* 15 000 No.	5,158,354 No.	18,331	940,109
26th...	16,009 523,400	4,963,780	31,267	765,851
27th...	24,793 544,000	7,196,173	52,882	780,746
28th...	21,805 501 400	7,560,593	52,681	1,611,997
29th...	18,190 732,880	11,758,563	65,990	1,847,554
30th...	23,799	12,006,878	32,835	1,013,359
31st...	28,748 324,716	13,377,054	48,114	1,298,175
32nd...	78,021	14,359,413	140,528	634,667
33rd...	107,554	20,896,129	313,750	1,128 182
34th...	145.811 70,000	29 768,092	398.189	2,469,590
Total	482,813 2,846,396	127,045,029	1,154,527	12,490,230

The sudden activity of the nursery work from the 32nd year was due to the fact that in that year a special account system was allowed in forestry management. Then the rate of conifers and broad-leaved trees in the seedlings raised amounted to 10 of the

former to 1 of the latter. In the conifers, *Sugi*, *Hinoki*, *Karamatsu*, *Aka-matsu* predominated over others.

In newly-planted areas, except in areas of protection planting, the cutting of grass is generally made every year for the space of three years subsequent to the planting. Then during the next ten years the grass-cutting is done every other year. Thinning is carried out for tending the growth of young trees and for preserving the forest-aspect. During the five years ended in the 34th year 13,588.3 *cho* of State forests were subjected to this thinning process, by which 229,146 cubic *shaku* of wood for industrial uses was obtained, besides, 156,019 stacks of firwood, and 192,630 bundles of branch-litters. These intermediate forest produce are growing more and more valuable owing to the greater demands on them for various purposes.

A. ARBORICULTURAL EXPERIMENTS.

Arboricultural experiments were first started at Nishigahara in the 9th year, but it was not until after the 30th year that the work became really brisk. In that year eight experimental nurseries were established in different typical places, and, under the supervision of the chiefs of the nearest Major Forestry Offices, they were made to carry out investigations relative to sylvicultural climate, selection of species best calculated to improve the forestry aspect, germination and growth of young plants, and such subjects. The overseers of the nurseries were made to submit to the Minister of Agriculture and Commerce reports on the results of the investigations. At the same time the central nursery established at Kami Meguro, suburb of Tokyo, under the direct contral of the Forestry Bureau, was made to examine the reports sent in from the local nurseries and also to take charge of experimental planting of exotic species.

The experiments on the exotic species being still incomplete, it is not possible to give any authoritative statement as to the relative adaptability to Japanese soil of the various species planted in the nurseries. Judging from the aspect of growth, the following species are likely to prove a valuable addition to Japanese sylviculture.

Robinia Pseudoacacia, *L.* (Imported from the U. S. A.). Sown in the nursery in the 33rd year, the plants have already

grown to the height of over 4 metres. The principal merits of this species are quick growth, adaptability even to poor soil, and the presence of strong reproductive power, shoots springing up from the side-roots. As a substitute for the indigenous *Hage-shibari* the tree may serve even better than that shrub for the purpose of preventing the drifting of sand and landslip. The wood is also hard and well suited for earth works.

Pinus rigida (Imported from the U. S. A.). Sown in the 33rd year, the plants have grown over 1 metre high. In respect to strong reproductive power, hardy character, and adaptability even to poor soil, this species resembles our *Aka-matsu* very much, and like it the species is apparently suited for dunes and shifting sands.

Populus monilifera (Imported from the U.S.A.). The young plants measuring 0.7 metre in height were imported from that country in the 32nd year and transplanted to the nursery. They have attained the height of over 4 metres. Both in growth and reproductive power they are very strong, being capable of artificial regeneration by cuttings. As material for match-wood, the tree is as excellent as the indigenous popular.

Juniperus Virginiana (Imported from the U. S. A.). Those sown in the 23rd year have attained the height of 1½ metres, and those in the 33rd that of 1 metre. Judging from the experiments thus far carried out, it does not seem difficult to acclamatise the specie to Japanese soil. In that case the wood will lead to encouraging our lead-pencil industry, which has failed to attain any marked development for lack of suitable wood.

Of the other exotic species experimentally planted in the nurseries, the German *Alnus glatinosa*, the American *Pinus strafus*, the German *Cedrus deosata*, and some Himalayan species are likely prove valuable trees for planting in exposed places. The Himalayan *Cedrus deosata* also makes a fine ornament for the garden.

B. FOREST-ROADS AND RIVER-TRANSPORT WORK.

Before the Restoration, owing rather to excessive care exercised by feudal princes for the preservation of their forests and the enforcement of what we may call the "closed door" policy of administration in their dominions, there were grave obstacles to the efficient

management of forests and their exploitation. Endeavors have been made for obviating those obstacles, and in such of those State or Imperial Household forests that are of a permanent nature or that admit of financial treatment, the work of constructing forest-roads has been carried out so far as circumstances permitted.

According to the existing rules forest-roads are divided into two kinds, main roads and subsidiary roads. Further they are divided into railed-roads, cart-tracks, roads made of wood, foot-paths and cattle-paths. The first three are considered as main-roads and the latter two as subsidiary roads. A main-road must be connected with a railway or with a highway, while a subsidiary-road must be connected with a main-road. A highway, though intended for general traffic, often receives from the Department of Agriculture and Commerce some help towards its extention and repair, provided such highway is judged to facilitate the transport of timber.

Owing to the inconvenience of procuring labor and materials for construction, the cost of constructing forest-roads is generally high, the average per *ri* of main-road amounting to over 6,500 *yen* and that of subsidiary-road to about 4,000 *yen*. The cost of bridge-making is equally high, as a bridge in a forest-road is to be constructed over a rapid stream liable to overflow. This question of expense very much therefore obstructs the progress of the construction of forest-roads, so that during the ten years beginning in the 25th year the roads constructed in State forests have not exceeded 776,677 metres in length, of which the following were constructed from the 31st to the 34th year :—

	Metres.	Expense. *yen*.
Main-roads	132,000	212,575
Subsidiary-roads	109,600	66,102
Total...	241,600	278,677

The roads recently constructed in the Imperial Household forests are as follows :—

	Metres.	Expense. *yen.*
Main-roads	44,140	55,833
Subsidiary-roads	28,080	26,708
Total...	72,220	82,541

Besides the above, the track laid with 12 pound-rails in the Household forests at Kiso measures 8,212 metres, the expense required being 14,680 *yen*.

In the colder districts, such as Hokkaidō or the north-eastern part of Honshū, the wood is to a large extent, carried over hardened snow in winter at a very small expense.

The transport of timber depends very much on the facilities supplied by rivers which are easily available as a rule in our forests. This means of transport has been carried on extensively from former days, and the conveyance of Kiso wood on the river Kiso, of Nagakizawa wood on the river Noshiro, and of Kitayama wood on the Shingū are some of the most important cases of the regular river-transport of timber. However in order to make rivers serve still more efficiently this purpose, all the obstacles in their course should be removed, the river-banks should be made strengthened, while in the lower course where a wood-depot is to be formed damming-work should be carried out. From the 32nd to the 34th year the obstacles were removed over 32,800 metres of river bed and the stones thus taken out of the bottom covered 49,176 cubic *tsubo*.

VI. WOOD PRODUCE.

General Remarks:—Data on forestry yield being unavailable in the case of privately-owned forests, we must content ourselves in this section with giving the data in connection with the State forests measuring about 7,500,000 *cho* and the Imperial Household forests measuring about 2 millions.

It is hardly necessary to state that the yield from the forests varies considerably according to position and local conditions, and that while the harvest of convertible timber depends upon the species

of the trees and their growth the amount of the financial yield depends upon the locale of the growing stock, the relative facilities of transport, and the demands on the market.

HARVEST OF CONVERTIBLE TIMBER;—The harvest of State forests continues to increase with the progress of the work of management, and, compared with what it was 10 years ago the yield at present shows an increase of about 35 per cent. as stated in the following table :—

	25th. *shakujime.*	28th. *shakujime.*	31st. *shakujime.*	34th. *shakujime.*
Timber...	984,464	1,107,941	1,010,621	1,707,813
Firewood	3,361,566	3,544,068	3,609,036	4,158,186
Total	4,346,030	4,652,009	4,619,657	5,865 999
Forest area (*cho*)...	7,541,633	7,715,793	7,773,155	7,586,201
Yield per *cho* ...	0.58	0.58	0.59	0.77

Note :—In the foregoing figures the harvest of root, stump-wood, and faggots is excluded, while fractions of a *shaku-jime* are also omitted. A *shakujime* measures 12 cubic *shaku* and corresponds to about a third of 1 cubic metre. This remark applies to all the subsequent tables of a similar description.

The increase of the harvest has been brought about by a longer thinning made possible by the improved method of management and by the extension of the utilization area which was in turn due to development of means of transportation. Indeed the utilization area of State forests increased from about 18 per cent in 25th year of the whole area to about 21 per cent. in 34th year. In other words, the rate of utilization area increased during the period in question by 17 per cent. as against 35 per cent. of the volume of the timber-harvest.

The harvest, according to the foregoing table, increased during the specified period from 0.58 *shaku-jime* per *cho* to 0.78 : and these compared with the respective utilization areas correspond to 3.2 to 3.7.

The volume of the harvest as compared with the volume of the growing-stock in the State forests is extremely small, and indeed does not reach even one half of what it should be. The reason of this abnormal yield must be sought in the fact that in most of the forests situated in hilly districts the presence of miscellaneous trees

is seriously affecting the growth of timber-trees, while in most of the forests the growing-stock has not yet attained the normal "age-classes." Further the Government is disposed to minimize, till the management programme is completed, the volume of the yearly fellings, while the imperfect means of transport, absolutely considered, very much affect the extent of the utilization area.

FINANCIAL YIELD:—The State-forests, hampered as they are from various inconvenient conditions, are placed in a highly disadvantageous situation, so far as the financial side of yield is concerned. This point is significantly shown in the following figures showing the yield during the 10 years ended 34th year inclusive:—

	25th. *yen.*	28th. *yen.*	31st. *yen.*	34th. *yen.*
Timbers	342 556	555,906	767,842	1,369,171
Firewood	213,709	299,449	372,515	486,141
Root, stump-wood, faggots, etc. ...	66,324	19,348	28,708	37,880
Minor produce ...	120,229	73,755	142,904	158,655
Rent	23,618	25,361	46,323	73,689
Sundries	44,623	24,801	93,374	50,986
Total	811,059	998,620	1,451,666	2,176,522
Total Area (*cho*) ...	7,541,633	7,715,793	7,773,155	7,581,201
Yield per *cho* ...	0.108	0.129	0.187	0.288

Note:—In the above table, fractions of a *yen* are omitted, except in the figures representing the yield per *cho*.

Though absolutely considered, the yield of only 0.288 *yen* per *cho* is exceedingly small, still it must be regarded with satisfaction on account of the relative progress that it indicates. The record for the 28th year as compared with that of the 25th shows an increase of 19 per cent., advanced to 73 per cent. in the next three years, and to 260 per cent. in the subsequent three years. Again when compared with the utilization area only, instead of the whole area, the yield per *cho* increased during the ten years from 0.647 *yen* to 1.386 *yen*.

This creditable progress, relatively speaking, has been brought about not merely by an increase in the volume of the harvest, but principally by the recent growing demand for timber with the consequent rise of the market price, and by the diminution of transport

expenses owing to the greater facilities offered by the improved means of communication. Above all the receipt from timbers has been strikingly increased, these timbers being mostly the timber of conifers such as *Sugi, Hinoki, Hiba, Momi, Aka-matsu,* etc. Poles produced by thinning were till ten years ago practically destitute of value but these now command a good price on the market. The rapidity with which the yield from timbers has advanced during the ten years under review is indeed remarkable, for while it has been quadrupled during that period the yield from firewood has only been doubled.

EXPENDITURE :—With the increase in the gross yield, the expenditures have necessarily been expanded. In the 25th year the expenditure stood at 522,762 *yen*, but during the subsequent ten years the amount has been almost doubled, that is it has risen to 1,029,966 *yen*. This increase, though partly due to the rise of wages and of the price of commodities, a phenomenon inseparable from the progress of the time, was more attributable to the expanded scope of improvement measures :—

Year.	Area.	Management expense.	Working expenses.	Total.	Expenses per *cho*.
	yen.	*yen.*	*yen.*	*yen.*	*yen.*
25th	7 541,633	423,146	99,616	522,762	0.070
28th	7,715,793	402,789	180,085	582,874	0.076
31st	7,773,155	553,016	364,674	917,690	0.118
34th	7,581,201	669,149	330,817	1,029,966	0.137

Note :—The management expense includes salaries of officials, office expenses, travelling expense, repair of offices, etc.; while the working expenses comprise the cost of felling, transport, planting and all the other items incidental to the working of forests.

As stated in the foregoing table the average managing expenses per *cho* increased during the ten years under review from 0.056 *yen* to 0.082 *yen*, while the average of the working expenses increased from 0.013 *yen* to 0.044 *yen*. In other words, while the rate of increase of management expenses is about 60 per cent. that of working expenses is as much as 340 per cent. The ratio of management expense is rather high as compared with working expense, the former constituting, on an average, 68 and the latter 22, if we take the total expense as 100. This comparatively high rate

of management expense is explained by the enormous extent of the State-forests, and especially the fact that most of them require a thorough re-organization, and all these involve extraordinary trouble and expense. However, the ratio between management expenses and working expenses is gradually recovering normal proportion, for while in the 25th year the management expense bore to the working expense the ratio of 21 to 5, in the 34th year the proportion became 21 to 10. The proportion is sure to become more satisfactory when the second foresty adjustment programme now being carried out shall have been completed.

PROFIT :—Forestry yield is obtained by deducting from the gross receipts the working expenses, while the net profit consists of what remains after the management expense has been deducted from the remainder. Calculated in that way, the net profit of State-forests stands thus :—

Year.	Total area.	Gross receipts.	Gross disbursements.	Net profit.	Profit per *cho*.
25th	7,541,633	811,059	522,762	288,292	0.038
28th	7,715,793	998,620	582,874	415,746	0.054
31st	7,773,155	1,451,666	917,690	533,976	0.069
34th	7,586,201	2,176,522	1,029,966	1,146,556	0.151

The net profit per *cho*, as stated in the foregoing table, has increased from 0.038 to 0.151 compared with the utilization area. The rate per *cho* was 0.212 *yen* in the 25th year and it advanced to 0.72 *yen* ten years after.

As forests that were collected in one place and that were comparatively regular in aspect were selected as Imperial Household forests on the occasion of setting apart a part of State forests as property of Imperial estate, the forests belonging to this special class, besides being easy to manage are rich in conifers and valuable timber-trees, so that the harvest is more satisfactory than that in State-forests. The harvest during the ten years commencing in the 25th year is stated below :—

	25th. *shaku-jime.*	28th. *shaku-jime.*	31st. *shaku-jime.*	34th. *shaku-jime.*
Timbers	803,026	588,692	685,193	1,110,324
Firewood	723,321	500,820	555,468	848,316
Total	1,526,347	1,089,512	1,240,661	1,958,640
Total area	3,478,007	2,108,720	2,091,066	2,093,404
Harvest per *cho* ...	0.44	0.51	0 59	0.94

The average harvest per *cho* that was 0.44 in the 25th year increased to 0.94 ten years after, an increase of more than two-fold. The statistics on financial side are as follows :—

	25th. *yen.*	28th. *yen.*	31st. *yen.*	34th. *yen.*
Timbers	226,709	327,644	752,585	845 139
Firewood	50,131	50 604	62,867	83,291
Faggots, stump-wood, root, etc...	163	3 141	3,196	4,636
Minor produce ...	13,655	18,619	22 894	29,402
Rent	19,724	29,433	54 770	77,667
Sundries	28,647	30,150	34,346	74,089
Total... ...	340,027	459,591	930,658	1,114,224
Total area	3,478,007	2,108,720	2,091,066	2,093,404
Yield per *cho* ...	0.099	0.218	0.445	0.532

Just as in the case of the State-forests, with the progress of the work of management along the economic line the volume of the harvest and the amount of the gross receipts are gradually increasing, to make a still greater development as that work proceeds. Then the financial results of the administration of the Imperial Household forests are somewhat better, owing to the reasons mentioned above, than in the case of the State-forests, for the gross receipts that stood at 0.095 *yen* per *cho* in the 25th year advanced to 0.533 in the 34th. As might naturally be expected, expenses have also advanced.

	26th.	28th.	31st.	34th.
Total area (*cho*) ...	3 478,007	2,108,720	2,091,066	2,093,404
Management expenses (*yen*) ...	106,154	110,138	115,291	147,734
Working expenses (*yen*)	208,157	195,594	369,954	496,686
Total (*yen*)...	314,311	305 732	485,245	644,420
Expenses per *cho* (*yen*)	0.090	0.145	0.232	0.308

In respect to the increase of expenses, the Household-forests are very much like the State-forests, for during the period under review the expenses per *cho* increased from 0.09 *yen* to 0.308 *yen*.

However, in contrast to the corresponding state of affairs in State-forests, the ratio between the management expenses and the working expenses is entirely reversed, the former constituting only 27 and the latter 73, out of the total expenses of 100. This com-

parative smallness of the management expenses in Household forests is explained by the fact that the forests, owing to their convenient location, and on account of their being comparatively well-organized do not require any large amount of money to be spent on them. Thus while State-forests required in the 34th year management expenses amounting to 0.092 *yen* per *cho* the corresponding figure in Household-forests was only 0.071. On the others hand the average working expenses of State-forests in the year mentioned were 0.045 *yen* per *cho* against 0.337 in case of Household-forests. This remarkable difference between the two is ascribable to the fact that while in State-forests the forest-produce to be sold is generally done so in the shape of standing-trees, in Household-forests whatever produce becomes disposable is directly utilized by the Household itself which of course undertakes the work of conversion.

The net profit from the Household-forests as calculated by deducting the gross disbursements from the gross receipt was minus 22,640 *yen* in the 25th year, the loss being at the rate of 0.007 *yen* per *cho*. Subsequently conditions were restored to their normal aspect, for in the 28th year net profit grew to 0.045 *yen* per *cho*, to 0.125 in the 31st and to 0.138 in the 34th. In other words during the last seven years out of the ten under review, net profit was increased by 0.093 *yen* per *cho*.

The financial results of the administration of our State and Household forests as compared with the results obtained in the case of the State-forests of Germany and Austria-Hungary are really saddening, for in both those countries State-forests are yielding incomparatively larger profit. For instance the rest profit per *cho* reaches 0.76 *yen* in Austria, 1.264 in Hungary, 6.136 in Prussia, 14.72 in Baden, 15.416 in Wurtemburg, and as much as 23.353 in Saxony. In the same way, if we compare financial results obtained in the case of our large forests with those of our State and Household forests the contrast is equally glaring, for the cryptomeria forests in Yoshino, which are managed according to the 130 year rotation system, yield a net profit of 29 *yen* per *cho*, the coppice-wood at Tōkaidō, near Tokyo, yields under 45 year rotation the net profit of 39 *yen* per *cho*, and the *Hinoki* forest at Muro, Wakayama-ken, yields 12 *yen* under 45 year rotation.

Several causes are responsible for this striking smallness of profit in our State and Household forests, as, for instance, the fact of their being scattered in different parts of the country, for this condition tends of course to the increase of the management expenses; also the fact that they are at present undergoing a process of regular adjustment while the comparatively defective means of communication in localities naturally require greater working expenses interfering as it does with the economic utilization of forest-produce. Moreover the work of systematic forest management was commenced quite recently, and as the necessary investigations are not yet complete for no small part of the total areas, the areas to be utilized have to be calculated in a guarded mannar. Then there are not a few areas which instead of being profitable require, on the contrary, the consolidation of a large amount of money.

Practical illustrations of the foregoing remark can easily be given. The case of the State-forests under the control of the Ishikawa Major Forest Office is a good example. The forests under its jurisdiction measure 496,393 *cho* in area. In the 34th year they required about 26,757 *yen* on account of management and about 33,510 *yen* on account of working expenses, in all 60,267 *yen*. Now the gross receipts in that year amounted to only 30,133 *yen*, leaving a loss of 30,134 *yen*. This unsatisfactory result is explained by the fact that those forests demanded a comparatively large sum for their improvement, hence this poor record.

On other hand, some of the State-forests yield far better returns. There is, for instance, the Akita Major Forest Office and the Nagoya Imperial Estate Branch Office. The former has under its control 1,091,491 *cho* of State-forests. In the 34th year they yielded 512,602 *yen* against the disbursements amounting to 117,889 *yen*. In other words they yielded a net profit of 0.361 *yen* per *cho*. The Nagoya Office controls 637,586 *cho*, of Household-forests, and they yielded in the same year profit at the rate of 0.941 *yen* per *cho*.

The Government is endeavoring to remove the obstacles standing in the way of getting better financial returns from its forests, and while, it is exploiting, within the means at its disposal, forests located in retired places and enlarging utilization areas, it is at the same

time taking measures for reducing the working expenses and the cost of produce, as for instance by improving the means of transport. Efforts are also made to encourage the utilization of species of wood which were formerly not much in demand, and also to facilitate the process of disposing of converted timber. Thanks to all those efforts and to the development of the timber industry, the financial position of our State-forests are now on a fair way of being considerably improved.

VII. MANAGEMENT AND SUPERVISION OF FORESTS.

Considerable changes have taken place as to the repository power of managing and supervising forests since the feudal princes surrendered their fiefs to their sovereign liege in the 2nd year (1868), and when the forests held by them were converted into State property. At first the State-forests were placed under the control of the now defunct Geographical Bureau of the old Department of Civil Affairs; then, on the abolition of that Department, to the old Industrial Bureau of the Department of Finance. The forestry policy of that Department was, as it now appears, a mistaken one, inasmuch as it was chiefly directed to the carrying out, without any necessary preliminary investigations, deforestation and the disposal of forests and timber. When in the 7th year of Meiji (1874) the control of State-forests was transferred to the resuscitated Geographical Bureau of the Home Office, a change in the right direction was made, and measures for demarking forest areas, encouraging planting and inaugurating a regular working plan were adopted, while at the same time something was done towards creating efficient controlling organs of forests both in the central and local administrative offices. But it was after the 11th year the existing Forestry Bureau was created that affairs relating to State-forests and to forests at large were for the first time placed under the control of a special office and that something like a regular system began to be evolved. This tendency became more manifest with the transfer of the Bureau in the 14th year to the control of the

Department of Agriculture and Commerce, a Department of State that was created in that year. Subsequently the forestry policy of the Government has gone on acquiring greater importance and consistency.

According to the existing system the Minister of Agriculture and Commerce is the supreme supervisor of all matters relating to State-forests and to forests at large, and, subject to his control, the Forestry Bureau takes charge of all matters relating to the administration and scientific treatment of forests. The staff of the Bureau comprises, besides its director, four forest commissioners and ten clerks, and these attend to the working and treatment of State-forests and supervision of private forests.

The right of supervision of private forests is derived from the Forest Law promulgated in the 30th year. In accordance with the provisions therein set forth, the Government extends to utilization forests suitable economic treatment of a positive nature, while, on the other hand, the negative policy of prohibiting felling and similar restrictive measures is extended to protection forests. In all these matters the respective local Governors are made to act as supervisor in the first instance, the right of issuing final directions resting with the Minister of Agriculture and Commerce.

The control of State-forests is conducted in accordance with Imperial Ordinance No. 18 issued in the 16th year, by which a regular system of management was elaborated. By that system the management is conducted by sixteen Major Forest Offices and 325 Minor Forest Offices.

The Chiefs of the Major Forest Offices have, subject to the control of the Minister of Agriculture and Commerce, to attend to all matters relating to the acquirement or sale or transfer of State-forests, the determination of working plans, the establishment or settlement of "per centage" forests, the establishment or abolition or any alternation of minor forest offices and watch-offices. For all those measures and for two or three others the Chiefs of Major Forest Offices have to obtain the approval of the Minister before coming to any final

decision, but for affairs of other descriptions the chiefs are authorized to act at their own descretion. Then they also elaborate draft working plans of high rotation system, attend to the programme of forest treatment, draw up yearly estimates of their respective offices, and inspect and settle all matters relating to the scope of the yearly felling and planting. In short, in regard to the control of State-forest the chiefs act in the first instance, as supervisors. Further, a chief has under him a forest manager and an assistant forester who have to attend the duty of supervising the execution of work and the details of the forest administration.

The Minor Forest Offices are placed in change of forest-overseers with assistants and forest guards under them. Subject to the supervision of the Chief of the Major Forest Office the Minor Forest Chief sees to the drawing up of a programe of a year's felling and planting, and of other prescribed items of business. He also attends, in comformity with the programme approved of by his superior, to the work of managing and utilizing the State-forests, and also undertakes necessary investigations of various sorts. Matters relating to the sale of forest-produce, the preservation of State-forest boundary marks, and the protection of forestry, etc., are also dealt with by him.

An assistant overseer assists his chief in matters relating to the working and utilizing of forests, while the forest guard attends to the protection and care of the forests placed in his charge. A number of protection stations are established in each Minor Forest Office jurisdiction, and each station is left in charge of a forest-guard. The officials on duty at a protection station undertake, under the supervision of the Chief of the Minor Forest Office, to deal with all matters relating to the investigation of growing-stock, felling, planting, and also to attend to work of transport-road and to the receipt and delivery of materials.

The following table shows the location, extent of jurisdiction, etc. of the Major Forest Offices.

Names of Major Forest Offices.	Location.	State-forests under control (in thousand *cho*).	No. of Minor Forest Offices.	No. of Protection Stations.
Aomori	Aomori, Mutsu...	946	25	113
Akita	Akita, Ugo	1,091	22	94
Iwate	Morioka, Rikuchū	424	16	50
Miyagi	Sendai, Rikuzen	778	20	61
Fukushima ...	Fukushima, Iwashiro ...	508	20	81
Tokyo	Tokyo, Musashi	936	31	84
Nagano	Nagano, Shinano	931	17	54
Ishikawa... ...	Kanazawa, Kaga	497	12	39
Ōsaka	Ōsaka, Settsu	69	18	61
Okayama... ...	Okayama, Bizen	108	18	75
Hiroshima ...	Hiroshima, Aki...	174	25	83
Ehime	Matsuyama, Iyo	135	12	49
Kōchi	Kōchi, Tosa	201	19	77
Fukuoka... ...	Fukuoka, Chikuzen	103	20	76
Kumamoto ...	Kumamoto, Higo	229	26	76
Kagoshima ...	Kagoshima, Satsuma... ...	446	24	122
Total		7,576	325	1,199

The foregoing table will show that the extent of the Major Forest Office's jurisdiction lies between the two extremes of 1,091,000 *cho* of Akita and 69,000 *cho* of Osaka, the average for the whole being 480,000 approximately. A greater diversity is noticeable in the jurisdiction of Minor Forest Offices, this diversity being unavoidable in such a country as Japan where systematic forestry management is still in the inception stage and where means of communication are as yet imperfect, and the formation of forests is irregular. Thus while the Matsuyama Minor Office controls only 2,000 *cho*, that of Iiyama under the Nagano Major Office, controls as much as 396,000 *cho*. The average for all the Offices is 23,000 *cho*. It is natural that, with the progress of the work of economic management, the extent of jurisdiction of a Major and a Minor Forest Office will become more limited.

The number of protection stations also differs according to places. The average number to each Minor Office is three to five, but in some exceptional cases as in that of the Tsunodate Minor Office which is subordinate to the Akita

Major Office the number is as many as eight. The number of protection stations is determined according to the condition and manner of treatment of the forests left in charge of the Minor Offices, and also according to the attitude of the local people to those forests. Where the attitude of the local people towards the State-forests is unsatisfactory a number of honorary forest-rangers are appointed from among people of local influence.

The foregoing organization applies to the State-forests under the control of the Department of Agriculture and Commerce but there are other kinds of State-forests in charge of other Departments of State.

The State-forests in Hokkaidō are, subject to the supervision of the Minister of Home Affairs, placed under the jurisdiction of the Chief of the Hokkaidō Administration Offices who maintains throughout the island 30 Forest Offices and 77 Protection Offices. The former attend to forest affairs such as those dealt with by the Minor Forest Offices in Honshū, while the latter attend to similar matters as those of of the Protection stations.

The State-forest in Formosa are, subject to the supervision of the Minister of Home Affairs, placed under the control of the Governor-General who bids each local office to take charge of State-forests in its jurisdiction.

The State-forests in Okinawa, the seven islands of Izu, and Ogasawara are, though belonging to the jurisdiction of the Department of Agriculture and Commerce, left for the convenience of the local administration, in charge of the respective local authorities who manage them subject to the supervision of the Minister of Agriculture and Commerce.

VIII. FORESTRY EDUCATION.

The remark that the progress of industry is a faithful reflection of the progress of education is fittingly examplified in the case of our forestry industry, for the recent striking development in our forestry economy must be regarded as

an outcome of a similarly striking development in sylvicultural education.

It was in the 15th year that the Tokyo Dendrological School, the first of its kind in Japan, was established at Nishigahara, but now in no less than 62 institutions the science and art of forestry is taught. Of that number three are imparting a collegiate education, five a special course on forestry of secondary education grade, another five are giving a special course on the same subject of a somewhat lower grade, while the remaining 48 are imparting a general knowledge of forestry as a subsidiary subject to one or another of the main courses of practical education. It ought to be noted here that formerly all the important educational organs on forestry were subjoined to the Department of Agriculture and Commerce, but as it was judged more convenient to have them transferred to the control of the Department of Education, this transfer was effected in the 23rd year.

The College of Agriculture of the Imperial University of Tokyo is a successor of the former Tokyo Dendrological School referred above and of the Komaba Agricultural College, at Komaba, Tokyo, both of which were under the control of the Department of Agriculture and Commerce. The two were amalgamated in the 18th year into the Tokyo Agricultural and Dendrological School, and five years later this School was incorporated into the University to constitute one of its colleges.

The other two collegiate institutions where a higher course on dendrology is taught are the Sapporo Agricultural College and the High Agricultural and Dendrological School at Iwate, both of which are under the control of the Department of Education. In the former the course was opened in the 34th year while the latter, a new creation, opened its academic term only in March this year.

In all of those collegiate courses, in compliance with the demand of the Government forestry authorities and of general foresters, special attention is paid to the training of specialists who are to combine adequate scientific and practical knowledge on forestry, and who, on leaving school, are qualified to attend with efficiency to the duty of managing and improving our forests. The Govern-

ment is giving special encouragement to the study of this useful science, by offering to the graduates comparatively good posts.

The College of Agriculture is also provided with a briefer course on agriculture and dendrology, as was the case in the day of its immediate predecessor the Tokyo Agricultural and Dendrological School.

The five schools of secondary education grade where a special course on dendrology is taught are as follows :—

Kiso Dendrological School	Nishi Chikuma, Nagano-ken.
Aichi Agricultural and Dendrological School ...	Hekkai-gun, Aichi-ken.
Nara „ „ „ „ ...	Yoshino-gun, Nara-ken.
Shimane „ „ „ „ ...	Yatsuka-gun, Shimane-ken.
Arima „ „ „ „ ...	Arima-gun, Hyogo-ken.

These schools are either public or communal institutions, and are under the direct control of their respective local Governors. The Department of Education confines its interference merely to matters regarding the unity of national practical education. Though those schools are intended to train foresters who are to attend to duty either at local offices or as private foresters, they receive a subsidy from the Treasury, the object of that subsidy being to encourage the cause of practical education. Then the students enjoy equal treatment as those at ordinary middle schools in respect of conscription service, ordinary civil service, etc.

As these schools do not date back very far, they have not yet turned out any graduates, but the number of students is steadily increasing, the attendance being 418 in all at present.

The five schools of somewhat lower grade than the preceding ones are apprentice schools enjoying a grant-in-aid from the Treasury and are imparting an elementary knowledge of forestry to the students. The schools are maintained by communities which, from local circumstances, are interested in bringing up young men qualified to attend to forestry management and to exploit the forest industry. The course of instruction extends for three years, and according to the latest available returns the students number 417 for all the schools.

Of the schools whose curriculum includes forestry 37 are of the secondary education grade, and 11 are of the higher primary

education grade. Established long time back the list of graduates includes 1,323 for the former and 108 for the latter, while at present the schools of higher grade have 4,364 attendants and the others 782. As most of those schools teach agriculture, fishery or stock-farming besides giving instruction in forestry, the field of their service is very wide and their service may be easily available even in places where the engagement of forest specialists is not possible.

Lastly a short remark may be made about the Forestry Training School established at the Experimental Forestry Station at Meguro under the control of the Forestry Bureau of the Department of Agriculture and Commerce. The school is intended to train men who are to attend to the management of State-forests and to engineering work, so that the course of study comprises forestry, geodesic and triangular surveying and topographical-drawing. It is the main idea of this institution to impart a training of a thoroughly practical nature to as many students as possible within the shortest terms compatible with the demand of instruction.

IX. FORESTRY LEGISLATURE.

The provisions embodying general rules for the regulation of forests are set forth in the Forest Law promulgated in April 30th year, the law containing provisions about the control of utilization forests, protection forests, forest police, punitive rules, etc. A number of Imperial Ordinances pertaining to the law in qustion were promulgated at the same time, these Ordinances relating to the Local Forestry Council Rules, Conversion and Release of Protection Forests Rules for putting the Forest Law into Operation, Rules for compensating Damage of Protection Forests, Rules for managing Protection Forests, Rules relating to the Protection Forest Register, etc. The Register in question is of two kinds, one relating to privately owned forests and to be kept at the respective local offices, and the other relating to State-forests and to be kept at the Major Forest Office concerned.

The control of State-forests and plains is regulated by the Law relating to State Forests and Plains promulgated in March 32nd

year, and the rules appertaining to it are Rules relating to the Forests to be kept in custody by Shrines and Temples, Rules relating to the "percentage" State Forests and Plains (that is those to be worked in common by people); Rules relating to the sale of Forest-produce. Then again Rules relating to State-Forests and Plains left in the custody of Others; Rules of Operation of the Law of State Forests and Plains, Rules relating to the Sale of State Forests and Plains, etc. were issued in the same year either as Imperial Ordinances or Department Ordinances.

The Law relating to the Restoration of State Forests and Plains to Original Owners was issued in April 32nd year, and by issuing at the same time several rules appertaining thereof measures were devised for returning to original owners State forests and plains incorporated into State property, provided the alleged owner's claim is judged to rest on valid ground. This special arrangement has been adopted in view of the fact that not a few cases of incoporation hastily made soon after the Restoration have subsequently been discovered to have been not quite justifiable.

The existence of the Forestry Fund as an account independent of general account is a special feature in regard to the finance of forests and plains belonging to the State, the fund in question being employed for the special exploitation of forests, such as the surveying of State forests and plains, drawing up of their working plans, their planting, purchase of forests, etc.

The official organization of offices dealing with State forests and plains has been determined either in the shape of Imperial or Departmental Ordinances.

PART III.

MANUFACTURING INDUSTRY.

CHAPTER I.—General Manufactured Industry.

History—Principal Exports of Manufactured Goods—Principal Imports of Industrial Goods—Output of Principal Manufactured Goods.

I. HISTORY.

For more than two hundred and sixty years since the beginning of the Tokugawa régime, the country was in a state of perfect tranquility and the manufacturing industry received from the feudal prince and the Shogunate itself protection and encouragement. The Shogunate too resumed with Korea the friendship that had been interrupted for some while, connived at our people carrying on secretly commercial transaction with Chinese merchants; and even permitted them to expand similar transaction with the peoples of Annam, Siam, Luzon, India, and various countries in the Southern Seas, also with Portugal, Spain, England, Holland and Mexico. The first dawn of our industrial development may be ascribed to this commercial relations with foreign countrymen. In those days many foreign ships used to visit the ports of Kagoshima, Hakata, Goto, Hirato, Sakae, and Nagasaki to do business with our people, while not a few of the latter also crossed over on a similar mission to Siam, Luzon, and several places in the South Seas. It is hardly necessary to state that this contact with foreigners and the trade with them largely contributed either directly or indirectly to the development of our industry. The prohibition suddenly enforced from religious consideration during the era of Kwan-ei on this foreign trade and intercourse did serious harm to our trade and industry, and

hence on our prosperity. One thing that was fortunate was that the prohibition not absolute, and the two countries of China and Holland were allowed to continue their commercial transactions with us as before; so that foreign goods came to Japan through the merchants of these two countries, Nagasaki being the only market for foreign commodities at that time. The permission reserved to the Netherlanders was highly important to our country, as it served the the connecting link of introducing western civilization to Japan.

As mentioned above, manufacturing industry found congenial atmosphere for its development during the tranquil period of the Tokugawa régime, and indeed many were the industrial articles that were then either improved or newly invented. Principal manufacturing districts and their stable produce were as follows about the time of the Restoration :—

1. Raw silk —Musashi, Kozuke, Shinano, Kai, Mutsu, etc.
2. Silk fabrics :—Nishijin, in Kyoto, (relief silk), Kiriu, Ashikaga, Isezaki, Hachioji (plain silk) Kai (gunnai-kaiki) Fukushima (plain silk) Akita (relief silk), Yonezawa (figured silk), Tango, and Nagahama (crêpe silk), Kawagoe (nanako), Hakata (sash), Sendai (skirt for men) etc.
3. Hemp fabrics :—Nara (breached goods), Echigo (jofu goods), Omi (general hempen fabrics and musquito nets), etc.
4. Cotton farrics :—Kokura (Kokura-ori), Kurume (kasuri), Satsuma (kasuri), Yamato (kasuri), Iyo (kasuri), Kawachi and Mikawa (white cotton cloth), Shimotsuke (Maoka cotton cloth)
5. Porcelain :—Kyoto (Awada and Kiyomizu ware), Owari (Seto-ware), Ise (Banko-ware), Kaga (Kutani-ware), Izumo (Rakusan and Fushina-ware), Awaji (Minpei-ware), Chikuzen (Takatori-ware), Hizen (Arita-ware), Satsuma (Satsuma-ware), Iwaki (Soma-ware), Bizen (Imbe-ware), etc.
6. Lacquered-wares :—Kyoto (art ware), Noto (Wajima-ware), Kaga (Kanazawa and Yamanaka ware), Kii (Kuroe ware), Iwashiro (Aizu ware), Wakasa (Wakasa-ware), Mutsu (Tsugaru-ware), Dewa (Noto-ware), etc.
7. Copper ware :—Kyoto, Kaga, Takaoka, etc.
8. Japanese paper :—Kyoto, Suruga, Echizen, Mino, Iwami, Tosa, etc.

Other important ware and goods besides those mentioned were gold lacquered ware, carved ware, cutlery, cast iron ware, wood or bamboo or leather ware, mattings, *sake,* and soy.

The Restoration and the active intercourse with Occidental countries has inaugurated a new epoch in our manufacturing industry, and this change was especially marked in regard to the introduction of labor saving machines. Not that their use was unknown before the Restoration; on the contrary even prior to that period their use was encouraged by not a few feudal princes, especially in connection with cotton spinning and weaving. But it was only after the Restoration that the Government made a systematic effort to encourage the use of machinery in the manufacturing industry and established model workshops and factories for that purpose. This official effort was eagerly welcomed by the people who began to make extensive use of machines in the business of manufacturing raw silk. Other industries in the similar line many of which were new to Japan, were cotton and silk spinning, weaving, shipbuilding, iron industries of various sorts, the manufacture of cement, glass, bricks, matches, paper of foreign style, leather, tobacco, and beer, the refining of sugar, the preparation of india-rubber, the making of paint, artificial fertilizers, coal gas, coke and the carrying on of electric industries of various sorts, &c. &c. In the manufacturing industry as carried on by hand the introduction of Jacquard, Butten and other kinds of looms, and the introduction of such dye-stuffs as aniline, alizarine, etc., have imparted a powerful impulse to the development of weaving industry and of dyeing. In a similar way the use of Western style of kiln and of Western pigments, and the use of gypsum mould and copper lithograph have opened a new path of development to our keramic industry. The progress too of the fancy mat making and of the making of straw-plaits has been something striking and the goods as are now turned out for foreign markets display a highly finished workmanship.

Under these circumstances our manufacturing industry has made great strides during the last two or three decades, so that not only are articles produced for home consumption but also a large quantity of goods for the foreign markets. How great this advance is may be easily inferred from the fact that the volume of manufactured

goods which did not exceed 10 million *yen* in the 23rd year advanced to over 74,700,000 *yen* ten years after, an increase of more than sevenfold. The total volume of our export goods of all descriptions advanced during the same period from 55,700,000 to 193,800,000 *yen* both in round numbers, that is to say, trebled. Again, even if raw silk, straw-plaits, etc., are excluded, the export of industrial commodities occupies about 40 per cent. of the total value of exports. Thus while in the 23rd year the proportien of industrial commodities exported constituted 18 per cent. of the total volume of export, the percentage advanced to 38 ten years hence. It will be seen therefore that the part played by manufacturing industry in the economy of our export trade is one of supreme importance.

II. PRINCIPAL EXPORTS OF MANUFACTURED GOODS.

The different parts played by manufactured, agricultural, marine and other goods in the economy of export trade and their movement may be seen from the following table.

Kind of produce.	33rd. *yen.*	32nd. *yen.*	31st. *yen.*	23rd. *yen.*	Relative percentage. 33rd.	32nd.	31st.	23rd.
Industrial.....	74,788,770	76,050 312	66,422,690	10,090,125	38.0	36.3	41.5	18.0
Agricultural...	73,336,835	94,507,774	66,184,407	28,776,272	37.8	45.1	41.4	51.6
Fishery	5,902,623	5,624,303	4,702,739	3,698,484	3.5	2.7	2.9	6.6
Mining.....	27,459,979	24,102,161	20,357,640	11,098,964	14.2	11.5	12.7	20.0
Miscellaneous.	12.324,339	9.233.027	2,278,635	2,128,002	6.5	4.4	1.5	3.8
Total ...	193,812,546	209,517,577	159,946,111	55,791,847	100	100	100	100

It ought to be noted that raw silk of all sorts and straw-plaits are included under the head of agricultural goods. It will be seen from the foregoing table that manufactured goods have made the most striking development in the export trade, and that while in the 23rd year their share was only 18 per cent. against 51.6 of agricultural goods, the relative proportion became 41.5 and 41.4 respectively in the 31st, 36.3 and 45.1 in the 32nd and 38 and 37.8 in the 33rd. In other words, agricultural goods that formerly oocupied the proud position of being the most important item began to be superseded by manufactured goods.

The importance of manufactured goods as a factor in export trade becomes really preponderating when raw silk of all kinds and straw-plaits are counted amoung them instead of being included in agricultural goods, as shown below :—

				Percentage.		
	33rd.	32nd.	31st.	33rd.	32nd.	31st.
Manufactured	127,632,276	145,522,297	113,530,035	66.0	69.4	70.9
Agricultural	20,493,329	25,035,789	19,077,062	10.5	11.9	11.9
Others.....	45 686,941	38,959,491	27,339,014	23.5	18.7	17.2
Total	193,812 546	209,517,577	159,946,111	100	100	100

The manufactured goods computed in that way have always constituted more than 66 per cent. of the total volume while the agricultural have constituted less than 12.

Below is given a table showing the movement of the export of staple manufactured goods.

PRINCIPAL EXPORTS OF MANUFACTURED GOODS.

	18th year. *yen.*	23rd year. *yen.*	28th year. *yen.*	33rd year. *yen.*
Cotton, yarns	—	2,364	1,034,479	20,589,263
Silk, raw	13,033,872	13,859,339	47,866.257	44,657,029
Silk, *noshi*	672,630	1,445,275	1 347,256	960.687
Silk, waste	462,558	1,126,579	1,515,464	3,200,631
Cotton tissues, white	—	—	—	1,778,532
Cotton tissues, gray shirtings ...	—	—	—	1,754,411
Cotton tissues, cloths	—	—	—	477,914
Cotton tissues, *tenuguiji*	—	45,203	53,780	101.351
Towels	—	—	—	356,322
Cotton tissues, *chijimi*...	—	51,130	585,909	370,774
Cotton tissues, *gasuitoori*	—	—	—	190,161
Cotton tissues, flannel or *Monpa*...	—	3,174	400,520	602,041
Cotton blankets	—	—	—	235.241
Cotton shirts...	—	—	—	237,778
Cotton undershirts and drawers...	9,145	37,037	96.993	235,056
Silk tissues, *habutae*	—	818,537	8,354,490	17,436,381
Silk tissues, *kaiki*...	—	—	1,392,536	878.313
Silk handkerchiefs	—	2,516,946	5.339.955	4.318,553
Carpets, hemp, cotton or wool ...	2,727	51,048	1,635,902	866,591
Clocks, standing and hanging ...	—	—	—	229.458
Iron, manufactures of	7,459	32 850	96,875	247.539

	18th year.	23rd year.	28th year.	33rd year.
	yen.	*yen.*	*yen.*	*yen.*
Bronze and Copper ware	178,768	209,385	330,633	284,003
Jinrikisha	34,603	50 939	104,698	121,879
Lamp and parts thereof	—	—	—	282,225
Furnitures	9,875	48,096	103,481	208,706
Glass, manufactures of...	4,700	77,343	346,477	478,629
Cement	—	—	—	194,467
Porcelain and earthenware	695,269	1,245,957	1,955,060	2,471,904
Shippoki	23,470	36,109	132,191	188,574
Copy-paper	—	—	—	336,615
Paper, hanging	20,831	101,661	79,259	116,303
Paper, European	2,949	5,441	40,005	228,497
Paper napkins	28,675	108,986	506,933	140,026
Matches...	60,566	1,489,030	4,672,812	5,760,869
Leather	258,655	97,182	323,543	1,133,620
Match sticks	—	—	--	153,305
Soda	66,306	26,650	75,287	106,725
Soap	65,792	34,970	118,268	170,447
Beer and other all liqors	101	20,366	132,712	612,744
Sake	15,222	41,745	415,334	549,815
Soy	10,579	23,772	74,883	280,667
Cigarettes	3,613	8,593	115,760	715,554
Flour	36,356	43,630	191,848	73,076
Hats and caps	1,779	3,063	102,076	124,180
Brushes	—	—	—	384 798
Umbrellas, European	1,721	114,228	735,207	860,986
Lacquered ware	467,521	572,157	1,083,212	1,066,390
Straw-plaits	—	87,196	1,387,643	4,025,159
Mats	935	347,541	3,461,370	3,310,042
Fans, and folded round	137,530	339,388	430,197	949,175
Screens	148,640	269,754	366,010	408,048
Ivory, manufactures of...	23,480	35,436	106,599	105,344
Wood, manufactures of	3,2213	142,397	398,350	344,178
Bamboo, manufactures of	105,986	194,483	417,094	605,171
Buttons	—	—	—	319,538
Toy...	—	—	—	346,047
Boards, for tea box	—	—	—	398,620
Total	16,524,857	25,773,983	91,229,418	137,293,414

Note:—The export of cotton goods was seriously affected in the 33rd year by the North China affair. In the 32nd year the export of the goods to China amounted to 28,521,438 *yen* and in the 34th year 21,465,573 *yen*.

As shown in the foregoing table the staple manufactured export goods for the 18th year numbered 35 comprising raw silk of all sorts, knitting-work, carpets, iron ware, bronze ware, copper ware, jinrikisha, furniture, glass ware, porcelain and earthenware, cloisonne ware, wall-paper, paper napkin, matches, leather, soap, beer and other liqors, soy, cigarettes, flour, umbrella, lacquered ware, fans, screens, ivory ware, wooden and bamboo ware, etc. The volume of export of all those goods did not exceed 16 million *yen* of which raw silk, contributed 13,000,000 *yen*, porcelain and earthenware 600,000 *yen*, lacquered ware 460,000, each of the rest occupying the level of less than 200,000 *yen*. In the 23rd year the new items of cotton yarns, towels, cotton crepe, cotton flannel, *habutaye* silk, silk handkerchiefs, and straw-plait made their appearance, bringing up the total export of manufactured goods to 25 million *yen*, an increase of about 50 per cent. compared with that of the 18th year. Of that 25 millions, raw silk occupied 13 millions, silk handkerchiefs 2,500,000 *yen*, matches 1,400,000 *yen*, porcelain and earthenware 1,200,000 *yen*, lacquered ware 570,000 *yen*, fancy matting 340,000 *yen*, folding and round fans 330,000 *yen*. The export of silk handkerchiefs to such extent while it was non-existent in the 18th year is a noteworthy fact, and equally striking was the advance of the export of matches which did not exceed 60,000 *yen* in the same year. The export of fancy matting to the extent of 350,000 *yen* is also a noteworthy fact, inasmuch as fancy matting did not figure on the list of export goods in the 18th year, or at best its export was really insignificant. The appearance for the first time of cotton yarns on the list is also indicative of the progress of our manufactures.

Coming down to the 28th year we find that the total export had advanced to 91 million *yen*, an increase of 550 per cent. as against that of the 18th and 350 per cent. against that of the 23rd year. Raw silk with 47 million *yen* continued to occupy the first rank on the list, followed by 8 millions of *habutaye*, 5 millions of silk handkerchiefs, 4,600,000 *yen* of matches, 3,400,000 *yen* of fancy matting, 1,900,000 *yen* of porcelain and earthenware. The items that were specially conspicuous in the 28th year were *habutaye* and cotton yarns, the export of the former amounting to about 810,000 *yen* in the 23rd year and that of the latter to only about 2,000 *yen*. In

a similar way the advance of silk handkerchiefs, *kaiki* silk, matches and fancy matting was also great. In the 33rd year quite a large number of new items appeared on the list, as white cotton tissue, shirting, cloth, gassed yarn goods, cotton blanket, clocks, lamps, copy-paper, match sticks, brush, toys, boards of tea-chest, etc. The total export reached to the figure of 130 million *yen*, an increase of 830 per cent. against that of the 18th year, 520 against that of the 23rd year, 50 per cent. against that of the 28th year. The principal items were raw silk with 44 million *yen*, cotton yarns with 20 millions, *habutaye* with 17 millions, matches with 5,700,000 *yen*, silk handkerchiefs with 4,300,000 *yen*, straw-plaits with 4,000,000 *yen*, fancy matting with 3 millions, porcelain and earthenware with 2,400,000, cotton piece goods with 1,700,000 *yen*, hides and leathers with 1,100,000, lacquered ware with 1 million, etc. The figures for cotton yarns and *habutaye* both of which practically began to go abroad from the 23rd year really striking. The marked development of the weaving business is demonstrated by the table given below.

III. PRINCIPAL IMPORTS OF MANUFACTURED GOODS.

Next the movement of the principal import goods shall be described :—

TABLE SHOWING THE CLASSIFIED TOTAL VALUE OF INDUSTRIAL COMMODITIES.

	Manufactured.	Agricultural.	Fishery.	Mining.	Miscellaneous.	Total.
	yen.	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*
33rd ...	141,975,874	93,800,279	2,184,846	6,684,205	41,943,218	286,588,421
32nd...	86,424,265	96,667,462	1,212,896	4,195,829	31,550,532	220,050,984
31st ...	122,444,710	112,754,614	609,736	3,728,106	37,733,563	277,270,729
23rd ...	24,621,570	42,326,361	159,753	10,439,008	4,123,662	81,670,354
			RELATIVE PERCENTAGE.			
33rd ...	4.96	3.27	0.08	0.23	1 46	10 00
32nd...	3.93	4.39	0.06	0 19	1.43	10.00
31st ...	4.42	4.07	0.02	0.13	1.36	10.00
23rd ...	3.02	5.18	0.02	1.28	0.50	10.00

It will be seen from the foregoing table that the import of manufactured goods amounted to 24,600,000 *yen* approximately in the 23rd year, that is to say 30.2 per cent. of the total import against 51,8 per cent. of agricultural imports. The import of manufactured goods rose in the 31st year to about fivefold of that of the 23rd year, with the ratio of 44.2 per cent. against 40.7 of agricultural goods. Further, in the 32nd year the amount of manufactured goods imported were about three and a half times the the amount imported in the 23rd year with the ratio of about 39 per cent. against 42 of agricultural goods. In the following year the import of manufactured goods again rose to the level of 100 million *yen* and to over 570 per cent. of that of the 23rd, the ratio to the total volume being about 47 per cent. against 32 of agricultural goods.

Now the import of foreign commodities increases as a rule with the purchasing power of a nation, but it alone cannot prove the condition of industry in the country in question. Nevertheless a careful examination of the movement of imports into our country tends to confirm the progress of our manufacturing industry, seeing that while the import of raw materials, machinery, etc. is increasing that of goods of special sorts is declining or at best making very slow progress. The following table of imports will go to prove this point :—

PRINCIPAL IMPORTS OF MANUFACTURED GOODS.

	18th year. *yen.*	23rd year. *yen.*	28th year. *yen.*	33rd year. *yen.*
Cotton yarn	5,190,094	9,928,062	7,082,975	7,043,046
Cotton threads	9,730	59,660	328,942	333,032
Flax or linen yarns	3,884	79,519	708,633	324,543
Woolen and worsted yarns of all kinds	10,218	494,316	951,035	1,798,535
Shirtings, gray	1,233,746	1,716,981	3,071,496	5,558,004
Shirting, white	98,814	225,889	505,720	1,325,142
Turkey-red cambrics	430,586	366,416	418,790	424,772
Shirtings twilled and Cotton drills.	151,371	137,236	577,441	435,384
Victoria lawns	8,983	53,295	133,697	281,718
Cotton prints	208,191	478,463	383,365	2,002,732
*Cotton flannels	—	—	—	444,835
Cotton satins and Italians	103,148	231,592	794,136	3,662,638

	18th year.	23rd year.	28th year.	33rd year.
	yen.	*yen.*	*yen.*	*yen.*
Cotton velvets	339,511	382,852	486,097	864,497
Handkerchiefs, cotton	38,299	138,657	204,683	367,363
*Plush or velvets, silk and cotton...	—	—	—	984,935
Italian cloth	—	—	921,741	1,120,737
Serges	26,144	63,447	119,845	1,162,418
Woolen cloth (cotton-woolen cloth included)	474,345	1,056,328	3,120,308	5,403,521
Flannels...	287,182	927,562	961,332	917,932
Muslin de laine	906,617	2,784,393	3,633,468	7,364,991
Blankets...	207,871	572,227	1,569,250	393,635
Pongee	31,138	24,024	78,091	134,162
Steam boilers and engines	78,571	345,016	431,925	773,255
Electric motor and Electric light apparatus or instruments	—	501,711	311,016	726,157
Spinning...	151,153	1,065,607	1,896,195	809,634
Looms	4,843	127,880	246,965	232,703
Sewing	16,714	14,280	51,570	240,243
Paper making...	4,159	28,701	48,900	476,134
Printing machines...	5,531	39,065	96,948	111,588
Fire-engines and pump...	35,568	43,739	155,763	374,330
Implements and tools of farmers and machines	25,992	43,844	84,626	263,859
Watch accessories...	4,698	17,365	99,191	464,184
*Watch movements and fittings ...	—	—	—	459,983
Clocks	295,230	1,027,015	993,590	916,336
*Carriages, bicycles and tricycles...	—	—	—	521,070
Cars or carriages, railway pas'ngers.	29,560	635,248	643,217	531,483
Cars or wagons, railway freight ...	171	123,482	99,954	804,980
Locomotive-engines	93,292	659,604	1,163,695	1,089,209
Vessels, steam	636,886	732,984	4,700,555	2,648 136
Photographic apparatus	1,063	35,929	116,811	260,114
Zinc, sheet	48,614	268,688	500,863	882,732
Lead sheet	15,325	60,915	44,804	174,358
Bar and rod, iron	296,348	830,116	2,085,684	5,243,408
Sheet iron	192,258	417,896	1,104,211	6,245,460
Tinned plate or sheet	49,182	33,425	313,644	832,149
Rails	497,816	1,259,381	925,531	4,753,371
Nails, iron	414,739	693,791	1,278,056	2,181,064
Pipes and tubes, iron	19,738	166,536	604,753	2,981,693
Copper tubes...	14,632	29,746	105,825	219,373
Brass tubes	19,195	17,075	107,569	242,173
Glass	163,490	394,377	426,258	1,149,640
Cement	33,366	175,563	42,273	120,945

	18th year.	23rd year.	28th year.	33rd year.
	yen.	*yen.*	*yen.*	*yen.*
Paper, printing	24,729	413,485	307,699	2,036,844
Other Europen paper	55,314	158,411	477,377	806,490
*Pulp, for making paper	—	—	—	455,130
Hides or skins, bull, ox, cow, and buffalo	305,091	243,776	695,985	656,643
Leather	412,907	652,849	1,590,596	2,085,981
Oil, kerosene...	1,667,722	4,950,256	4,303,929	14,162,652
*Oil, lubricating	—	—	—	624,828
Paraffin wax	6,567	107,288	266,340	511,559
Caouchouc, manufactures of... ...	32,412	99,674	222,795	332,860
India rubber	13,508	23,770	82,875	208,240
*Celluloid	—	—	—	442,050
Cork	6,503	19,397	59,470	302,535
Coke	10,125	5,496	90,669	314,690
Soap	30,731	51,245	66,082	242,492
Soda, caustic	119,750	145,823	234,000	929,526
Soda-ash...	—	—	—	482,877
Potash, chlorate of	—	182,133	419,053	679,312
Acid, salicylic	30,917	91,427	285,585	167,470
Glycerine	11,213	28,134	59,604	89,294
*Soda, bicarbonate of	18,638	39,959	102,917	153,564
Phosphorus, amorphous	12,664	89,971	260,823	244,979
Dynamite	19,186	70,038	231,490	187,169
Aniline dyes	142 432	349,579	682,138	1,328,751
Alizarine dyes	—	39,240	192,558	156,264
Logwood extract	49,815	99,365	218,839	321,807
Paint	—	—	292,888	286,783
Wines and all other liqors	121,071	480,644	821,179	680,123
Alcohol	—	113,746	440 905	132,051
Sugar, refined...	2,509,877	5,436,068	7,673,018	15,598,894
Sugar, half-refined...	2,144,291	2,974,075	4,074,241	11,007,634
Tobacco...	11,880	214,754	491,048	585 460
Flours	102,076	229,586	413,427	3,882,517
Condense milk	50,771	177,655	139,468	663,681
Hats and Caps	134,154	348,811	82,699	411.041
Mats, packing	66,840	80,935	148,748	221,807
Total	21,686,990	47,425,788	69,959,983	141,237,333

Note :—In the table the figures marked with a star (*) denote the goods whose export previous to the 33rd year was unknown, owing to the different method then adopted in compiling the returns.

A.—PRINCIPAL IMPORTS OF AGRICULTURAL GOODS RELATING TO INDUSTRY.

Kinds.	18th year. *yen.*	23rd year. *yen.*	28th year. *yen.*	33rd year. *yen.*
Cotton	809,072	5,365,153	24,822,097	59,471,629
Rice	674,330	12,302,884	4,357,096	9,021,536
Oil-cake	21,672	194,296	946,028	5,696,453
Beans, peas and pulse	92,628	1,856,279	2,554,764	4,817,767
Indigo, dry	61,243	201,071	581,370	3,902,559
Flax, hemp, jute and China grass	20,139	139,777	645,841	1,700,409
Eggs, fresh	21,820	31,370	95,207	1,243,065
Wool	75,385	369,914	1,136,951	3,919,693
Pig bristle and hair, other animal	—	15,694	58,468	216,595
Malt	—	—	—	619,220
Timbers, lumbers, boards and planks	24,427	27,622	159,631	869,341
Seeds, cotton	—	—	—	739,857
Cocoons	—	—	—	618,612
Seeds, sesame	970	4,802	60,866	194,509
Lacquer	—	9,589	145,712	237,026
Tussah silk yarns	—	—	—	351,359
Ivory or tusks, elephant	23,539	65,459	110,867	180,648
Total	1,960,325	20,583,910	35,674,898	93,800,278

B.—PRINCIPAL IMPORTS OF MARINE PRODUCTS.

Kind.	18th year. *yen.*	23rd year. *yen.*	28th year. *yen.*	33rd year. *yen.*
Salted fish	728	5,259	107,145	2,184,846
Total	728	5,259	107,145	2,184,846

C.—PRINCIPAL IMPORTS OF MINERALS.

Kind.	18th year. *yen.*	23rd year. *yen.*	28th year. *yen.*	33rd year. *yen.*
Coal	85,038	110,497	853,080	2,100,054
Pig and ingot, iron	105,843	185,948	673,796	926,910
Steel	176,848	194,360	503,571	1,153,822
Zinc, block, ingot and slab	20,587	69,716	134,614	686,081
Lead, pig, ingot and slab	16,678	85,425	313,632	927,151
Tin, block, ingot and slab	32,028	69,281	191,936	473,104
Mercury	33,728	102,833	141,302	258,698
Salt	1,329	2,943	3,245	122,384
Total	472,079	821,003	2,815,176	6,684,205

The industry in which machinery was used, was till about the 20th year, in a comparatively insignificant state, but it became active two or three years after, and finally received a powerful impetus after the Japan-China war. Appended is a table of the output of our principal manufactured commodities during the last five years :—

IV. OUTPUT OF PRINCIPAL MANUFACTURED GOODS.

	29th year.	30th year.	31st year.	32nd year.	33rd year.
	kwan.	*kwan.*	*kwan.*	*yen.*	*yen.*
Silk, raw	1,442,720	1,537,561	1,479,743	110,972,812	86,233,957
	yen.	*yen.*	*yen.*		
Silk yarn, spinned	740,297	1,842,901	2,849,430	4,233,140	4,296,883
Cotton yarn, spinned	39,455,513	50,634,858	56,285,668	81,620,187	73,619,589
Hemp and hempen yarn.	—	—	—	2,473,873	—
Silk fabrics	54,095,945	63,678,775	73,936,028	90,717,096	83,468,302
Silk tissues, *habutae* ...	15,232,989	17,683,789	21,523,369	29,528,643	25,819,778
Silk tissues, *kaiki* ...	3,614,689	5,091,432	5,049,201	6,343,845	7,484,429
Silk tissues, *chirimen* (Silk crêpes)	8,412,256	9,102,094	8,286,275	11,499,368	9,379,904
Others	26,836,011	31,800,460	39,077,183	43,345,240	40,784,191
Cotton fabrics	39,080,101	42,253,347	48,728,404	52,857,105	61,326,382
Cotton tissues, flannel...	7,350,208	7,718,444	9,089,006	8,893,904	9,720,599
Cotton tissues, *chijimi* (cotton crêpes) ...	1,406,977	1,450,454	1,316,776	2,667,676	2,476,385
Cotton tissues white ...	9,949,652	10,261,167	14,511,400	12,309,599	15,089,275
Others	20,373,264	22,823,282	23,811,222	28,985,926	34,040,123
Silk-cotton fabrics	9,131,968	11,723,137	16,216,987	18,546,175	20,275,823
Hempen fabrics	1,637,722	2,903,172	2,967,766	3,161,202	2,851,981
Woolen fabrics	1,094,090	1,039,149	1,655,971	3,384,252	5,034,720
Woolen & worsted cloths.	—	—	—	506	—
Woolen & worsted tissues.	—	99,706	123,242	254,659	—
Flannel, etc.	160,019	122,011	179,023	393,002	—
Muslin de laine	—	53,280	54,050	1,064,675	—
Others	934,071	764,152	1,299,656	16,711,410	—
Miscellaneous fabrics ...	—	—	—	549,891	—
Carpets, hemp, cotton or wool	965,601	1,090,983	1,073,284	1,046,372	—
Silk handkerchiefs	717,916	4,345,943	4,055,696	4,318,553	—
Knitting	—	—	—	518,800	—
	293,280	1,457,334	1,661,175	1,326,991	—
Machineries, etc.	9,370,830	3,730,400	1,971,954	4,175,144	—

	29th year.	30th year.	31st year.	32nd year.	33rd year.
	yen.	*yen.*	*yen.*	*yen.*	*yen.*
Ships and boats	—	—	—	4,651,888	—
Japanese junks	—	—	—	1.524,295	—
Steamships	—	—	—	2,648,115	—
Others	—	—	—	479,478	—
Clocks	676,566	722,502	765.954	1,190,279	—
Jinrikisha...	—	443,656	454 344	367,850	—
Bronze and copper ware...	924,486	1,130,642	1,194,302	1 383,750	1,106,907
Porcelain & earthenware...	5,205,185	5,163,070	4,965.319	5,867,832	6,873,693
Shippoki	270,920	219,842	191,555	315.676	—
Glass-ware	—	—	—	1,400,644	—
	1,481,443	1,118,311	1,341,871	92.400	—
Cement, Portland	1,350,433	2,284,220	2,160,873	2,372,266	—
Brick	1,446,063	1,827,923	1,158.110	598,666	—
Paper	13,053,812	15,268,669	15,293,143	16,940,430	20,986,548
European paper	2,745,172	3,006,682	2,901,136	4,947,480	7,001,111
Japanese paper	10,308,640	12,261,987	12,392,007	11,992,950	13.985,437
Leather or hide	—	—	—	1,544,400	2,392,206
	2,715,531	994,124	855,148	49,812	200,266
Matches	5,464,738	6,548,492	6,445,164	5.871.506	5,886,388
Oil, kerosene	—	—	—	1,556.794	—
Sulphate of potash	65,825	198,125	260,968	—	—
Phosphate of Soda	—	—	—	867,910	—
Sulphuric acid...	—	—	—	559,492	—
Soap...	244,237	933,763	893,298	794,823	—
Sake	58.723,415	73,318,508	83,691,166	108,328,650	—
Beer	636,539	642,692	809,525	2,809,874	—
Soy	10,900,633	14 616,939	13,938,025	23,782,840	—
	kwan.	*kwan.*	*kwan.*		
Sugar	12,642,294	10,550,489	14,527,242	5,662,261	6,216,206
	,,	,,	,,		
White	418,635	473,818	786,187	571,440	498,096
	,,	,,	,,		
Shiro-shita	6,608,635	4,278,943	3,866,478	1,513,794	1,655,073
	,,	,,	,,		
Brown	756,708	391,345	352,428	134,802	116,358
	,,	,,	,,		
Black	4,858,802	4,406,383	9,522,149	3,442,225	3,946,679
Tobacco, manufactured ...	8,110,214	16,719,131	23,123 097	140,651,493	—
Cigars	—	1,349,852	3,999,302	—	—
	835,559	1,303,222	2,310,689	5,528,600	—
Tobacco, cut	—	13.337,125	16,033,700	—	—
	7,274,659	728,932	779,406	135,122,893	—
Flour	—	295,588	432,326	—	—
	552,542	152,214	102,394	1,235,108	—

	29th year.	30th year.	31st year.	32nd year.	33rd year.
				yen.	*yen.*
Fans, folded and round ...	—	—	—	1,198,619	—
	1,079,855	1,457,333	1,323,648	13,888	—
Brushes	—	689,424	828,348	493,798	—
Straw-plaits	1,963,689	1,693,142	1,948,393	2,752,118	2,926,127
Lacquered ware	3,295,947	4,106,477	4,885,432	5,640,228	6,284,318
Hats and Caps	—	185,000	210,644	—	—
	683 809	156,131	129,423	424,321	—
Umbrellas, European ...	3,980,855	2,270,961	2,284,636	2,918,085	—
Matting for floor (*Hanagoza*)	2,183,721	3,217,482	2,090,676	2,460,151	3,039,795

In examining the foregoing table it is found that woven goods with the total value of 170 million *yen* comes at the top of the list, followed by tobacco with 140 millions, sake with 100 millions, raw silk with 80 millions, cotton yarns with 70 millions, soy with 23 millions, and paper with 20 millions. Other commodities worth mentioning are sugar, earthenware, matches, lacquered ware, ships and boats, machines of all sorts, cement, glass ware, fancy matting, straw-plait, umbrella, bronze and copper ware, etc.

CHAPTER II.—Organization of Manufacturing Industry.

Manufacturing establishments—Factories and workpeople

I. MANUFACTURING ESTABLISHMENTS.

THE introduction of Western sciences and arts has revolutionized so to say the organization of our manufacturing industry, for besides imparting a powerful impulse to its development it has gradually modified many of our manufactures that formerely partook of the nature of a family industry and caused them to gradually adopt the factory system including the use of elaborate machinery. This tendency been especially marked since the Japan-China War, when our economic affairs reached a state of unparalleled activity and when factories and workshops on a large scale began to make their appearance in quick succession. Appended is a table showing the number of workshops employing not less than 10 workpeople and of manufacturing companies :—

	No. of Workshops.				
	With motor.	Without motor.	Total.	No. of companies.	Ratio of companies to workshops.
32nd	2,763	3,788	6,551	2,253	34%
31st	2,003	4,067	6,070	2,164	36%
30th	1,971	4,346	6,317	1,881	39%
29th	1,967	4,403	6,370	1,367	21%

It will be seen from the above that the ratio which manufacturing companies bore to workshop made a marked advance, for it increased from 21 to 34. The falling off in the 32nd year as compared with the preceding year was because the workshops engaged in mining were withdrawn from the total. The ratio will become higher if all the workshops belonging to one company are counted as one, for there are many companies each possessing more than one workshop :—

NUMBER OF MANUFACTURING COMPANIES.

	No.	Aggregate capital.	Paid up capital.	Reserves.
		yen.	*yen.*	*yen.*
33rd	2,554	216,766 903	158,851,730	17,697,540
32nd	2,253	222,673,634	147.783,280	13 467,802
31st	2,164	183.657 046	122,066,653	11,642,993
30th	1,881	165,232,633	105,381,106	7,581 535
23th	1.367	143,617,530	89 900,900	7,404.980

Thus compared with the corresponding figures in the 29th year, the number of companies increased by about 87 per cent. in the 33rd year, gross capital by 66 per cent. paid up capital by over 75 per cent., reserves by over 200 per cent.

Those companies being classified according to kind, joint stock companies numbered 1,009 with gross capital of 180 million *yen*, limited liability companies 1,271 with a gross capital of 9 million *yen* and unlimited liability companies 274 with a gross capital of 10 million *yen*. Paid up capital amounted to 120 million for the joint stock companies, 19 million *yen* for the limited liability companies, and 10 million *yen* for the unlimited liability companies. Of the capital invested in manufacturing business, that of joint stock capitals constituted about 81 per cent. Of late the establishment of limited liability companies has become quite popular, as may be seen from the fact that their number in the 33rd year was double that of the 29th year. On the other hand the increase for joint stock companies did not exceed 68 per cent. during the same period.

	No. of companies.	Capital, total sum of.	Capital paid up.	Reserves.
		yen.	*yen.*	*yen.*
Rice cleaning	116	2.561,200	1.549.245	198,889
Milling	28	842.916	494,495	41 998
Sake	215	7,851,959	5.484,699	204,873
Beer	8	4,270 000	2.756 940	671.463
Soy and *miso*	72	1.752,250	1 267.778	67.557
Salt	75	364,280	347.000	32.225
Sugar-refining	6	3,768,500	2,591,000	159.948
Tea-manufacturing	6	113.450	72,700	450
Medicine	43	4,025,420	2,960,140	199 179
Indigo	8	49,400	40,200	487
Dye-stuff and paint	4	438,000	118.500	5.697

	No. of companies.	Capital, total sum of.	Capital paid up.	Reserves.
		yen.	*yen.*	*yen.*
Cotton	22	507,927	370,784	24,150
Cotton spinning	60	42,159,150	35,283,681	3,402,371
Other spinning	11	6,553 000	5,059,215	557,825
Raw silk	327	6,778,445	4,621,086	494,748
Throwning	11	1,382,300	648,050	45,812
Hemp-yarn	8	3,697,000	3,066,120	53,141
Tapes, bands, etc.	10	228,500	148,000	3,680
Silk-weaving	49	1,389 157	934,616	24,498
Weaving	57	2,739,650	2,047,560	164,744
Cotton-weaving	72	2,859,985	2,074,272	76,814
Wool-weaving	9	2,825,000	2,608,800	133,497
Knitting	5	616,000	365,250	7,025
Dyeing and bleaching	45	432,535	289,345	15,597
Copper and iron ware	16	1,022,950	770,607	46,370
Nails and iron ware	7	170,725	95,625	4,188
Machineries, etc.	40	4,438,561	2,940,401	177,805
Shipbuilding	14	10,627,100	7,940,767	715,540
Casting	8	136,000	91,800	2,245
Tools and implements	40	568,200	254,387	51,023
Vehicles	4	38,500	29,486	480
Weights and measures	18	360,700	226,200	8,336
Clocks and watches	8	672,000	362,300	23,950
Porcelain and earthenware	40	900,811	670,751	19,525
Glass ware	14	456,000	175,575	20,146
Gas-works	4	2 560,000	2,302,400	190,000
Printing and type foundry	108	2,121,965	1,550,448	186,058
Paper-mill	49	8,540,910	7,134,823	623,031
Vermicelli and maccaroni	13	293,950	94,762	4,087
Ice	18	1,045,600	549,350	24,281
Lemonade	33	305,250	192,920	14,352
Confectionary	17	370,200	149,150	2,107
Preserved fruits and meat	15	207,000	102,980	5,899
Provisions	4	25,000	12,500	425
Marine products	13	271,225	225,872	9,309
Tobacco	169	12,385,965	11,351,673	66,822
Umbrellas and parts of	8	115,647	108,587	69,606
Writing brushes, lead pencils, etc.	5	57,000	17,400	50
Leather and leather ware	16	937,085	689,585	30,705
Candle-making	5	180,000	180,000	24,500
Cords and ropes	10	1,185 410	867,410	160,350
Kerosene-boring	95	17,079,560	6,358,843	433,371

	No. of companies.	Capitals total sum of. *yen.*	Capital paid up. *yen.*	Reserves. *yen.*
Coal-boring	24	8 866,000	6,331,061	402,822
Cakes	5	103,500	59.335	176
Oils	19	1,510,400	971,786	214,496
Mats	15	172,725	85,630	3 880
Straw-plaits	7	118 300	106,900	1,300
Safety-matches...	36	1,175,350	736,133	49,631
Incense-sticks	6	18,800	18,800	700
Fuses...	4	16,650	14 650	100
Sawing	28	415,810	304,790	13,856
Lacquer-ware	12	389,000	154,350	5,565
Bobbins	5	268,000	218,000	5 000
Bamboo-ware	7	57,800	34,800	400
Cap and hats	7	632,200	497,571	47,841
Soaps and toilet goods	11	183,200	94 600	3,740
Tiles and bricks	80	3,507,460	2,110,483	95,062
Cement	25	5,733 000	4,501,991	396,630
Cakes	7	841,030	550,030	22,906
Coal	29	354.533	237,775	16,098
Clay	6	33,600	25,600	648
Quarrying...	15	355,200	201,322	6,103
Silk and re-reeling	23	131,715	103 665	3,774
Cocoon preserving	26	447,832	251,130	2,483
India-rubber ware	4	280,000	145,000	15,853
Fertilizers...	24	1,648,060	957.130	128 455
Other	30	586,850	471,607	70,409
Total	2,554	216,766,903	158,851,730	17,697,549

To examine the condition of all those establishments as to kind of business engaged in and the amount of capital invested, it is found that filature business with 327 establishments surpasses all others as to number, followed by *sake* brewing with 215 and tobacco manufacture with 169. As to capital, the cotton spinning business with 42 million *yen* heads the list, followed by tobacco manufacture with 12,300,000 *yen* approximately, shipbuilding with 10,600,000 *yen*. In the amount of paid up capital, the spinning business with 35 million *yen* also comes at the top, followed by the tobacco manufacture with 11 millions. The capital of 9,800,000 *yen* invested in the weaving business and that of 6,700,000 *yen* in the filature business may also be regarded as being an important factor in our economic activity.

II. FACTORIES AND WORKPEOPLE.

THE number of factories and workpeople employed will throw an important light on the condition of manufacturing industry. In the 32nd year the number of factories and work-shops employing not less than ten workpeople stood thus :—

THOSE RUN BY MOTORS.

	No. of workshop.	No. of plant.	Horse power.	Workpeople. Males.	Females.	Total.
29th	1,967	5,325	58,172	104,164	169,735	273,889
30th	1,971	5,446	68,331	117,081	174,154	291,235
31st	2,003	5,135	80,586	118,251	171,095	289,246
32nd	2,763	4,166	62,131	96,181	184,111	280,292
THOSE NOT RUN BY MOTORS.						
29th	4,403	—	—	64,122	76,509	104,631
30th	4,346	—	—	66,777	82,554	149,331
31st	4,067	—	—	58,224	81,328	139,551
32nd	3,788	—	—	41,938	70,679	112,617

Note :—The decrease of the number of workshops and others in the 32nd year was because the returns on mining previously included in the figures were withdrawn.

On examining the foregoing table it will be seen that the number of workshops run by motors is slightly larger than that of those not run by motors, the former corresponding to about 42 per cent. of the latter. The utilization or absence of motors depends of course to a great extent on the nature of manufacture conducted, for while in weaving business, manufacture of earthenware and lacquer ware, and the brewing of sake the workshops do not utilize in general labor-saving machines, motors are used in most cases in filature, spinning, shipbuilding, machine-making, weaving of shirting, cement, paper-mills, beer-brewing, sugar-refining, printing, smelting, etc.

To give further analysis about workshops, they may be broadly divided into these five different kinds :—

1. Fibre workshops (raw silk, spinning, weaving, cord-making).
2. Machine workshops (machine-making, shipbuilding, furniture-making, casting.)
3. Chemical workshops (ceramics, gas, paper-mill, lacquering,

leather-making, workshops for the manufacture of inflammable substances, artificial manures, drugs, etc.)

4. Miscellaneous workshops (brewing, sugar-refining, tobacco-manufacture, tea-curing, cleaning of grains, flour, lemonade, mineral water, confectionary, preserved fruits and vegetables, printing and lithograph, paper work, wood and bamboo ware, leather ware, feather ware, reeds and straw-plait ware, lacquer ware, etc.
5. Special workshops (electricity and metallurgy.)

Of the foregoing kinds of workshops, those engaged in the fibre line using motors numbered 1,900 with the aggregate horse powers of about 32,000 and the aggregate number of workpeople of about 196,000. In number the fibre workshops constituted 70 per cent. of the whole number of workshops using motors, in horse-power about 52 per cent. and in workpeople about 70 per cent. When those fibre workshops not using motors power are counted in, this kind of workshops constituted 57 per cent. of the whole number of workshops. The forgoing ratio will be seen from the appended table :—

A. RUN BY MOTORS.

	No. of workshops.	Horse power.	No. of workpeople.
Fibre...	1,921	32,094	196,723
Machine	208	4,274	18,412
Chemical	190	8,349	12,966
Miscellaneous	348	5,220	18,425
Special	36	12,194	33,766
Total...	2,763	62,131	280,292

B. NOT RUN BY MOTORS.

	No. of workshops.	No. of workpeople.
Fibre	1,803	50,394
Machine	157	4,205
Chemical	650	25,625
Miscellaneous	1,065	27,391
Special	113	5,002
Total	3,788	112,617

A. RUN BY MOTORS.

	No. of workshops.	Horse power.	No. of workpeople.
Raw silk	1,722	6,631	102,771
Spinning	137	22,264	84,118
Weaving	52	3,046	9,752
Others	10	153	782
Total...	1,921	32,094	196,723

B. NOT RUN BY MOTORS.

	No. of workshops.	No. of workpeople.
Raw silk	496	14,077
Spinning	29	714
Weaving	1,259	35,158
Others	19	445
Total	1,803	50,394

The foregoing table shows that in fibre workshops run by motors filatures constituted 89 per cent. of the whole number, and spinning mills 7 per cent., the two taking up 96 per cent. of the whole. Even in the whole number of motor-using workshops of all kinds, these two particular fibre workshops constituted 46 per cent. and 66 per cent. in the whole number of operatives. The three kinds of business of raw silk, spinning and weaving constituted, when workshops both run by motors and not run by them are combined, 99 per cent. of the whole number of fibre workshops, and the ratio to the total number of workshops of all kinds was as high as 59 per cent., and and in the total number of operative 63 per cent. Thus fibre workshops may be regarded as forming the bulk of all workshops in Japan, and workshops engaged in the manufacture of raw silk, spinning and weaving the bulk of fibre workshops.

The scope of the business of a workshop does not solely depend on the number of operatives employed in it, but in making inquiries as to the relative scope according to the data supplied by the appended tables and also by taking some other factors into consideration, it is found that those whose scope is large are, among fibre

workshops, spinning mills, power loom factories, and a small portion of filatures; among machine workshops, shipbuilding, vehicle-making, and machine-making; among chemical workshops, those engaged in alkali and cement-making and paper mills; among miscellaneous workshops, some of the tobacco, beer, and sugar workshops. Large workshops are also found in the smelting business. In general, larger workshops are run either by the Government or by joint stock companies, while workshops run by private individual or firms are generally on a small scale.

WORKSHOPS RUN BY MOTORS.

(Employing not less than 10 workpeople.)

Kind of workshops.	No. of workshops.	No. of horse power.	Workshops employing more than 30 people.	No. of horse power.	Workshops employing more than 50 people.	No. of horse power.
Fibre industry	1,921	32,094	1,286	30,509	797	28,721
Filature	1,722	6,631	1,125	5,647	654	4,073
Spinning	137	22,264	115	21,755	108	21,640
Weaving	52	3,046	38	2,961	27	2,862
Others	10	153	8	146	8	146
Machinery...	208	4,274	126	3,761	76	3,132
Machine-making ...	114	1,856	68	1,537	34	1,055
Shipbuilding	18	1,235	12	1,200	9	1,170
Vehicles	13	369	12	361	11	343
Others	63	814	34	663	22	538
Chemical	190	8,349	110	7,363	71	6,460
Cement	37	1,825	30	1,732	22	1,630
Paper-mills	11	4,135	28	3,977	20	3,727
Leather	4	61	4	61	3	53
Matches	5	23	5	23	5	23
Others	103	2,305	43	1,570	21	1,027
Miscellaneous	348	5,220	159	3,127	101	2,108
Brewery	21	186	9	134	4	101
Tobacco	91	578	41	456	30	406
Printing	65	531	46	463	34	389
Others	171	3,925	63	2,074	33	1,212
Special workshops ...	96	527	75	11,358	61	11,167
Smelting	89	472	71	6,719	57	6,528
Others	7	55	4	4,639	41	4,639
Total...	2,763	62,131	1,756	56,118	1,106	51,588

Kind of workshops.	Workshops employing more than 100 people.	No. of horse power.	Workshops employing more than 500 people.	No. of horse power.	Workshops employing more than 1,000 people.	No. of horse power.
Fibre industry	303	25,797	74	20,383	30	12,005
Filature	188	1,720	5	111	2	5
Spinning	90	21,170	62	18,534	27	11,936
Weaving	23	2,822	7	1,738	1	64
Others	2	85	—	—	—	—
Machinery	37	2,200	8	1,336	3	711
Machine-making ...	14	365	3	122	—	—
Shipbuilding	8	1,142	3	1,063	2	591
Vehicles	8	309	2	151	1	120
Others	7	387	—	—	—	—
Chemical	34	4,605	1	10	—	—
Cement	10	975	—	—	—	—
Paper-mills	12	3,271	—	—	—	—
Leather	2	44	—	—	—	—
Matches	3	19	1	10	—	—
Others	7	336	—	—	—	—
Miscellaneous	34	966	2	—	—	—
Brewery	2	66	—	—	—	—
Tobacco	7	168	2	62	—	—
Printing	13	210	—	—	—	—
Others	12	522	—	—	—	—
Special workshops ...	49	8,297	16	4,825	10	4,443
Smelting	47	6,144	16	4,825	10	4,443
Others	2	2,153	—	—	—	—
Total	455	41,885	101	26,616	43	17,159

WORKSHOPS NOT RUN BY MOTORS.

(Those employing not less than 10 people).

Kind.	No. of workshops.	Those employing more than 30 people.	Those employing more than 50 people.	Those employing more than 100 people.	Those employing more than 500 people.	Those employing more than 1000 people.
Fibres industry	1,803	441	183	56	1	1
Filature	496	133	58	18	—	—
Spinning	29	8	2	—	—	—
Weaving	1,259	294	123	38	1	1
Others	19	6	—	—	—	—
Machinery	157	22	10	1	—	—
Machine-making	24	—	—	—	—	—
Shipbuilding	16	5	3	1	—	—

Kind.	No. of workshops.	Those employing more than 30 people.	Those employing more than 50 people.	Those employing more more 100 people.	Those employing more than 500 people.	Those employing more than 1000 people.
Vehicles	5	1	—	—	—	—
Others	112	16	7	—	—	—
Chemical	650	238	136	52	1	—
Porcelain and earthenware	151	20	3	2	—	—
Paper-mill	41	19	6	1	—	—
Leather	5	3	2	—	—	—
Matches...	183	136	92	41	1	—
Others	270	60	33	9	—	—
Miscellaneous	1,065	246	86	22	1	1
Tobacco...	295	30	12	2	—	—
Brewery...	176	72	23	7	—	—
Rush and straw-plaits	147	36	13	3	—	—
Lecquer-ware	6	1	—	—	—	—
Others	441	107	38	10	1	1
Special workshops	113	49	30	12	—	—
Smelting	113	49	30	12	—	—
Others	—	—	—	—	—	—
Total	3,788	996	445	143	3	2

WORKPEOPLE :—If we make a somewhat careful examination into the question of the labor employed in workshops, it is found that, in workshops using motors, male operatives constitute about 96,000 out of the total of 280,000 approximately, the remaining 168,000 being female operatives. There is, therefore, a little over 34 per cent. of males and a little over 65 per cent. of females. When the figures for non-motor workshops are counted in, out of the total of 390,000 male operatives constitute 138,000 or about 35 per cent. and female operatives 254,000 or 65 per cent. In the classification, out of the total 280,000 working in motor-using workshops 254,000, that is over 90 per cent. are operatives of not less than 14 years old. Of the remaining 11 per cent. the bulk, that is to say 81 per cent. consist of girls and only 19 of boys. The kind of operatives employed differs according to the nature of the workshops. In fibre workshops the majority of the operatives are females and children, in machine workshops and special workshops adult males, and in chemical workshops adult males also, except in glass, paper, and

match factories. No general remark can be made about the kind of operatives in miscellaneous workshops, but this much can be stated that there are no big factories of this kind where a large number of female operatives or children are employed. Below is given a table showing the sex and age classification of operatives in workshops employing not less than 10 people.

WORKSHOPS RUN BY MOTORS.

(Employing not less than 10 workpeople).

Kind of workshops.	Males.		Females.		Total.
	Over 14 years old.	Under 14 years old.	Over 14 years old.	Under 14 years old.	
Fibre industry	26,014	1,394	149,338	19,977	196,723
Filature	5,868	88	88,425	7,690	102,071
Spinning	17,739	1,211	53,603	11,565	84,118
Weaving	2,185	83	6,829	655	9,752
Others	222	12	481	67	782
Machinery	17,848	255	270	39	18,412
Machine-making	7,030	90	81	2	7,203
Shipbuilding	4,488	10	1	—	4,494
Vehicles	3,707	18	—	—	3,725
Others	2,628	137	188	37	2,990
Chemical	9,188	329	3,061	388	12,966
Porcelain and earthenware ...	74	—	14	—	88
Glass ware	299	140	82	—	521
Cement	3,060	34	445	15	3,554
Paper-mills	2,497	50	1,155	150	3,852
Leather	496	37	118	32	683
Matches	154	47	635	159	995
Others	2,608	21	612	32	3,273
Miscellaneous	11,062	683	5,724	956	18,425
Brewery	965	—	127	8	1,100
Tobacco	1,235	95	3,145	511	4,986
Printing	4,152	413	495	164	5,224
Cocoons and straw-plaits ...	—	—	—	—	—
Lacquer-ware	—	—	—	—	—
Others	4,710	175	1,957	273	7,115
Special workshops	28,388	1,020	4,080	278	33,766
Smelting	28,388	1,020	4 080	278	33,766
Others	—	—	—	—	—
Total	92,500	3,681	162,473	21,638	280,292

WORKSHOPS NOT RUN BY MOTORS.

Kind of workshops.	Males.		Females.		Total.
	Over 14 years old.	Under 14 years old.	Over 14 years old.	Under 14 years old.	
Fiber industry	4,975	746	39,121	5,552	50,394
Filature	1,119	12	12,076	870	14,077
Spinning	192	43	426	53	714
Weaving	3,517	653	26,435	4,553	35,158
Others	147	38	184	76	445
Machinery	3,300	284	410	211	4,205
Machine-making	457	16	2	—	475
Shipbuilding	637	150	201	200	1,188
Vehicles	114	—	—	—	114
Others	2,092	118	207	11	2,428
Chemical	10,355	2,131	8,679	4,460	25,625
Porcelain and earthenware ...	2,237	215	526	73	3,051
Glass ware	750	264	63	14	1,091
Cement	2,266	51	538	21	2,876
Paper-mills	536	131	549	89	1,305
Leather	170	4	—	—	174
Matches	2,083	1,430	6,579	4,180	14,272
Others	2,313	36	424	83	2,856
Miscellaneous	15,417	781	9,505	1,688	27,391
Brewery	5,452	13	80	6	5,551
Tobacco	1,418	102	3,424	726	5,670
Printing	2,055	356	150	56	2,617
Cocoons and straw-plaits ...	1,145	72	1,854	550	3,621
Lacquer-ware	117	—	3	—	120
Others	5 230	238	3,994	350	9,812
Special workshops	3,754	195	970	83	5,002
Smelting	3,754	195	970	83	5,002
Others	—	—	—	—	—
Total	37,801	4,137	58,685	11,994	112,617

Operatives may further be divided into two kinds, day operatives and boarding operatives, the former residing in the vicinity of the workshops which they attend and the latter those who have been collected from distant places, the majority of them being females. Though the relative proportion of day and boarding operatives in workshops cannot admit of generalization, it may be stated here that the greater part of boarding operatives belongs to fibre workshops, or

more especially filature, spinning and weaving. In some filature and spinning workshops the majority of the operatives are day operatives, while in weaving shops about 70 to 80 per cent. are boarders, and this datum obtained from workshops of certain places may be applied in general to workshops of the same kind throughout the country.

No accurate statement as to the age of the majority of operatives employed in any given kind of workshops can easily be elaborated, but broadly stated the greater part of operatives in filature factories are females of 16 to 22 years of age, the number of those from 22 to 30 coming next. Even the youngest are very rarely below 12 or 13. In general females of from 14 or 20 constitute 50 per cent., those above 20 about 40 per cent., and those below 14 about 10 per cent. of the total number of operatives employed. In spinning mills also girls below 14 constitute a little over 10 per cent. of the whole number, those from 14 to 20 about 50, and those older about 40 per cent. of whom the majority are of 20 to 25 years old. The female operatives in power-loom factories do not differ from those of spinning mills in regard to the age ratio, and those in hand-weaving workshops are similar to those in filatures.

In shipbuilding, vehicle and machine workshops the workpeople employed are almost exclusively adult males, especially in those run on a large scale. Even when boys are employed they are mostly not less than 15 or 16 years of age and in very rare cases 12 or 13. In factories dealing in clock and watches, lamp accessories, shirt-buttons, umbrella-frames, etc. female operatives and children are sometimes employed, but those factories are all on a small scale, and the number of such operatives is small. In chemical workshops, and especially in glass factories boy apprentices of 12 to 13 years are employed to some extent. In some rare cases small number of boy-apprentices of about 10 years old is employed. In paper-mills not a small number of females and children is employed, while in match factories they constitute the bulk of workpeople, the youngest of whom being about 9 years old. This is also the case in tobacco factories, though the number of children under 10 employed in such factories is smaller than the number employed in match factories. In printing workshops the majority are adult males, sometimes with a sprinkling of children of less than 14 years old.

a. WORKING-HOURS:—In general the working-hours of operatives are 12 hours a day, but sometimes they extend as long as 16 or 17 hours. In cotton mills 12 hours are standard, both for day and night workers, they being made to take day and night work by turns every two days. In filatures the regular hours are 13 to 14, in power-loom factories 12. But in hand-weaving workshops a great diversity prevails, the the general rule being 12 to 15, according to the season, though in some rare cases the hours are as long as from 16 or 17. In bigger workshops such as shipbuilding yards, vehicle, and machine shops, the working hours are far more regular, being in general 10 hours, with one or two hours of overtimes. In such chemical workshops as cement, glass, and paper in which work is carried on all through the 24 hours, 12 hours is a regular shift both by day and night. In general the rergular working-hours in Japanese workshops may be put at 12, with overtime of one or two hours.

b. WAGES:—Wages are paid in general by the day and according to the amount of work done, though payment by the month also prevails to some extent. In general amounts are settled once or twice a month, though in some cases they are settled every six months or once a year. In filature the payment is made according to the amount of work done, and by the month, though in some places a yearly account system prevails. In cotton mills those who receive daily wages constitute about 40 per cent. of the whole and those who receive payment according to the amount of work done, about 60 per cent. The latter mode of payment is becoming more and more fashionable. The accounts are settled generally twice a month. In hand-weaving workshops the mode of payment is similar to that which prevails in filature, while in power-loom workshops it is similar to that in cotton mills. In such machine workshops as shipbuilding, vehicle and machine, daily payment of wages is general, but at times a piece of work is given out as a job contract to one or more artisans. The account is settled once or twice a month. In match workshops payment is made according to the amount of work done, as is also the case in tobacco workshops, while in printing workshops the daily wage system and the payment by the amount of work done equally prevail. In general this latter mode is adopted

in all those workshops where the amount of work done by work-people can be definitely computed.

The rate of wages is about 30 *sen* a day for adult males, employed in such fibre workshops as filature, cotton mills and weaving-shops, while that of females is about 20 *sen*. In machine workshops engaged in making ships, vehicles and machines the rate is generally high, 50 to 60 on an average, and a skilled artisan gets more than 1 *yen*. In match factories, on the other hand, the rate is much lower, being 12 to 20 *sen* for ordinary female operatives, and 5 to 13 *sen* for little girls. In tobacco factories and printing-shops ordinary females get about 20 *sen* and males about 40 to 50 *sen*.

CHAPTER III.—Administration of manufacturing Industry.

History—Legislation.

I. HISTORY.

Matters relating to manufacturing industry were at first controlled by the Industrial Bureau of the former Department of Industrial Affairs, to be transferred, on the abolition of that Department, to the Department of Agriculture and Commerce. Though the control has remained in this Department from that time to this day, the office that had direct charge of manufacturing affairs has undergone frequent alterations, for the tenure of the Bureau of Manufacture was precarious and was repeatedly created and abolished and finally combined, as it is still to-day, with the Bureau of Commerce At present all matters relating to manufacture are under the control of the Bureau of Commerce and Manufacture, and are in direct charge of the Section of Manufacture which forms part of the Bureau. The Section in question deals with matters relating to experiments made with the view to improving manufacture and manufactured goods, the position and construction of workshops, the control of boilers, the employment and engagement of operatives and apprentices together with their relief, education, health, etc. In April 33rd year a temporary factory committee was created in the Section of Manufacture, and was made to inquire into matters concerning factories and operatives.

II. LEGISLATIVE MEASURES RELATING TO MANUFACTURING INDUSTRY.

The first legislative measure enacted about manufacture was that issued by the Department of Agriculture and Commerce in November 17th year, when an Ordinance was promulgated about the formation of guilds. The object of that measure was to encourage different interests to form themselves into guilds and to provide against the production of shoddy goods. In December of the 21st year regulations relating to patents, designs and trade-marks were issued by Imperial Ordinances, intended to extend protection to inventions, designs and trade-marks, and to encourage the development of manufacture and industry and to protect the interest of business men. In April of the 30th year a law relating to guilds of staple export interests was enacted, entitling those engaged in the manufacture or transaction of any staple export commodity to organize themselves, on the approbation of the Minister of Agriculture and Commerce, into a guild and further entitling a guild so formed to compel any one engaged in a similar line to join it. Such a guild was also permitted to form itself into a juridical person. It is needless perhaps to state that the aim of the law in encouraging the formation of a guild was to put a check to all evil practices tending to retard the development of the business. Three years later the law was superseded by the law relating to staple commodities interests, and therefore more comprehensive in its scope and operation. About the same time a law relating to industrial guilds was promulgated, the object being that credit guilds, purchase guilds, sales guilds, and production guilds may be organized to be made as economic corporations aimed at furthering the business and economy of the members. In February 34th years rules were issued relating to the establishment of local and communal industrial experimental laboratories or manufacturing training schools, the object of the enactment being to encourage the improvement and progress of manufacture. It was arranged about the same time that matters relating to the control of boilers, factories and operatives be left in charge of the respective local offices.

CHAPTER IV.—Manufacturing establishments by the central and local governments.

Encouragement and protection by central Government —Encouragement and Protection by local bodies.

I. ENCOURAGEMENT AND PROTECTION BY CENTRAL GOVERNMENT.

The encouragement and protection of industrial enterprises were carefully looked after even before the Restoration. This was especially the case with the three daimiates of Satsuma, Mito and Saga. They established in the era of Ka-ei (1848–'53) an arsenal after a Western model, and began to turn out guns of foreign pattern. Satsuma even started the manufacture of porcelain and glass-ware and also the work of shipbuilding, all after the Dutch model, while coming down to the era of Bunkyu (1861–'63) we find that it sent for a set of spinning machines to England, and established a pioneer mill in its territories. The construction of a shipyard on Ishikawajima by the lord of Mito is also a noteworthy event. Nor did the Tokugawa Shogunate neglect to introduce a similar innovation. In fact the shipbuilding industry received from it full attention. During the era of Ansei (1854–'59) it constructed a shipyard at Aku-ura, Hizen, and a similar undertaking was soon arranged at Yokosuka, Sagami, only the Restoration took place before it had been completed. This half completed shipyard was finished by the Meiji Government which in the 7th year constructed another shipyard at Tategami, Hizen. The Yokosuka yard was afterward transferred to the Navy which has since raised it to its present state of efficiency and perfection. The two shipyards in Hizen were hired out to the Mitsubishi Firm in the 17th year and finally sold to it three years after, so that the two are now known by the name of Nagasaki Shipbuilding yard belonging to the same firm.

The movement started by the Tokugawa and feudal princes by way of encouraging industry and manufactures was vigorously taken up by the Meiji Government. It established in the 5th year a model filature at Tomioka, Gumma-ken, with the object of introducing the use of labor-saving contrivance in the manufacture of raw silk, while the operatives trained at this factory spread all over the principal silk districts the art of reeling according to the new style. The filature itself supplied a model to all silk districts and similar establishments rose in quick succession. An undertaking next adopted by the Government in a similar line was the establishment in the 10th year at Shimmachi, Gumma-ken, of a silk spinning mill to utilize waste silk and waste cocoons that inevitably accompany the manufacture of raw silk. This innovation also served the salutary purpose of encouraging similar enterprises on the part of private individuals. Further, in a similar way, a woollen factory was established in the 10th year at Senju, suburb of Tokyo, and ten years after private woollen factories began to make their appearance in several places. The cotton spinning business also received the attention of the Government which established in the 14th year a model mill at Nukada-gun, Aichi-ken, and Aki-gun, Hiroshima-ken. About the 13th or 14th year 10 sets of spinning plant each of 2,000 spindles were sent for to England and handed over to be paid for in ten years instalments to people of different places who were interested in the business. The project that appeared in the 16th year in Shiga-ken about hemp spinning received help from the Government which loaned to the promoters the fund required for purchasing a plant. Three years later this project developed as Hemp Spinning Mill established in that province. The establishment of the Hokkaidō Hemp Company at Sapporo in the 20th year received much help from the Government which besides extending to it various conveniences also granted a state aid for six years.

Further it was the Government that first started the work of manufacturing cement, having established in the 8th year a cement factory at Fukagawa, Tokyo, where the burning of white brick was undertaken as a subsidiary work. Then the establishment of a glass factory in April 9th year at Shinagawa, Tokyo; the creation of a paper-mill section in the Printing Bureau and the manufacture of

foreign style paper besides the improvement of the native style paper (the durable Japanese paper known as "Kyokushi" is the invention of the Bureau); launching of the work of machine-making, of soap-making, type-founding, of making porcelain in the Western style, of paint-making, also the establishment, as before mentioned, of filatures and the making of arrangements for training female operatives in all such new forms of industry—all these have imparted a powerful impulse to the progress of our manufactures throughout the country. Meanwhile factories modelled after those established by the Government began to be started by our people, and the Government no longer perceiving the necessity of maintaining its model factories began from about the 13th year to sell all of them with the exception of the Senju Woollen Factory.

As a means of encouraging the advance of industry and manufacture, the Government has not neglected to open exhibitions at home and to participate in those opened abroad. In the 11th year the First Domestic Exhibition was held in Tokyo where the succeeding two similar undertakings were also carried out. The Fourth Exhibition opened in the 28th year was held in Kyoto and the Fifth is at the time of writing open in Osaka. Besides, Japan participated in the world's fair held in Vienna, Philadelphia, Chicago and Paris, not to speak of various other international exhibitions of limited scope.

In the matter of legislative measures of protecting and furthering industrial interest the regulations relating to patents, designs and trade-marks; the establishment of silk conditioning house; the enactment of industrial interests guilds, etc. may be mentioned. Further, the sending out of experts to all the provinces to encourage by lectures and by practical experiments industrial enterprises there; the organizing of the industrial laboratory and of the *saké* brewing laboratory, the sending of student manufacturers and merchants to foreign countries to investigate the condition of manufactures and trade in those countries economically related to Japan, the hiring out of latest dyeing and weaving machines specially imported for the purpose to the principal dyeing and weaving districts such as Kyoto, Ashikaga, Kiryu, Fukui, Toyama, Yonezawa, etc.—all these measures have contributed to further our manufacturing industry to the present state of marvellous progress within a comparatively short space of time.

II. PROTECTION AND ENCOURAGEMENT BY LOCAL OFFICES AND PUBLIC BODIES.

The local offices and local civic bodies have followed the example set by the central Government and adopted measures for protecting and encouraging manufactures in their respective districts. The Local Office of Kyoto distinguished itself above all others in this respect, for as early as the 3rd year it established a chemical laboratory which attended to the business of keramics, dyeing, soap-making, etc.; while, in the 5th year, it sent a number of weavers to Lyon, introduced for the first time a number of Jacquard and Butten looms into the country; established a weaving factory after the Western style in the 7th year and a dyeing factory in the following year, and thus laid the foundations of attaining that eminence which Kyoto occupies to-day in the art of weaving and dyeing, or rather continues to occupy, for Kyoto was pre-eminent in these lines before. Other local offices equally adopted similarly salutary measures and the expenses they have incurred on this account must amount to a big figure. Those measures generally took the form of establishing experimental laboratories or training schools, opening local competitive fairs, the hiring out of costly machines, or the advancing of money to enable the manufacturers to purchase them.

CHAPTER V.—Industrial Education.

History—Existing Condition—Apprentice System.

I. HISTORY.

The history of the progress of industrial education after the advent of the Meiji Government may be considered as dating from the creation in the 4th year of the Engineering College, subsequently united with the Imperial University of Tokyo, where the subjects of civil engineering, mechanical engineering, shipbuilding, electrial engineering, architecture, chemical technology, mining, metallurgy, etc. were taught. It followed as a matter of course that the graduates from all those courses contributed very much to the progress of industry and to the diffusion of technical knowledge. The establishment in the 14th year of Tokyo Polytechnique School, now known as Tokyo Higher Polytechnique School, and the teaching of the subjects of dyeing, weaving, keramics, mechanical engineering, etc. has also proved similarly beneficial in the development of our industry. Similar institutions were subsequently created both by the Government and by the local offices, so that at the end of the 33rd year there were, to mention only institutions of higher grade, the Engineering College of the Tokyo Imperial University, the Science and Engineering College of the Kyoto Imperial University, the Tokyo Higher Polytechnique School, the Osaka Higher Polytechnique School, and last of all—it was created quite recently, the Kyoto Higher Polytechnique School. The technical schools of all grades throughout the country numbered in the year in question no less than 1,008 all contributing to the common cause of furthering technical knowledge among our people and of promoting the technical and manufacturing industries.

This progress of technical education enabled Japan to gradually dispense with the service of foreign experts, and though some such are still to be found here, the number is insignificant compared to what it was before.

II. EXISTING CONDITION.

With the object of still further diffusing technical knowledge and of imparting a general idea of science to apprentices and young mechanics and future manufacturers, the Government has been granting every year state aid to the amount of 150,000 *yen* from the 27th year, and has also made arrangement for turning out teachers qualified to undertake the teaching of those young people.

The higher grade schools of this standing, some deriving the aid from the fund in question and others not are as follows according to returns made in June 34th year:—

Locality.	Name.	Subject taught.	No. of students.	No. of graduates.	Date of foundation.
Tokyo.	Hachioji Technical School.	Dyeing and weaving.	45	327	Mar., 20th.
Niigata.	Naka-Unuma Dyeing and Weaving School	Do.	—	—	Sept., 30th.
Gumma.	Isezaki Dyeing and Weaving School.	Do.	—	31	Apr., 29th.
Do.	Kiryu Weaving School	Do.	—	17	Do.
Tochigi.	Tochigi Technical School.	Do.	68	72	Apr., 28th.
Yamanashi.	Minami-gun Dyeing & Weaving School.	Do.	22	52	Oct., 29th.
Iwate.	Iwate Technical School.	Metal and wood work.	90	65	Apr., 31st.
Yamagata.	Yamagata Technical School.	Dyeing, weaving, metal and wood work.	—	54	—
Kyoto.	Kyoto Applied Art School.	Painting, metal-inlaying, designs, carving, etc.	126	186	—
Do.	Kyoto Dyeing and Weaving School.	Dyeing and weaving.	93	119	Oct., 27th.
Nara.	Nara Technical School	Do.	—	—	Mar., 34th.
Fukui.	Fukui Dyeing and Weaving School.	Do.	26	321	Jul., 28th.
Ishikawa.	Ishikawa Technical School.	Painting, lacquer, and metal work, keramics, dyeing and weaving.	—	111	20th.
Toyama.	Toyama Technical School.	Carving, casting, lacquer work.	140	20	Nov., 27th.
Kagawa.	Kagawa Technical School.	Wood and metal work.	110	—	Mar., 31st.

Locality.	Name.	Subject taught.	No. of pupils.	No. of graduates.	Date of foundation.
Fukuoka.	Fukuoka Technical School.	Wood work.	183	58	Apr., 29th.
	Do. Kurume Branch.	Metal work.	98		
	Do. Ogura Branch.	Dyeing and weaving.			
Saga.	Saga Technical School	Wood and metal work keramics.	164	3	Apr., 31st.
	Do. Arita Branch.				
Kumamoto.	Kumamoto Technical School.	Wood and metal work dyeing and weaving.	—	—	Do.
	Total				18

Quite recently a technical school was started both in Okayama-ken and Ehime-ken.

The foregoing schools, which, by the way, are maintained at local or communal expenses or by private individuals, are classified as follows according to the subjects taught :—

Kind.	No. of schools.
Dyeing and weaving...	10
Metal and wood work	2
Painting, metal-inlaying, design and carving	1
Painting, larquer and metal-work, keramics, dyeing and weaving	1
Carving, larquer-work, casting	1
Wood and metal work, dyeing and weaving	2
Wood and metal-work and keramics	1
Total	18

The schools teaching dyeing and weaving exclusively are 10 in number, but when other schools which teach dyeing and weaving side by side with other subjects are counted in, the number increases to 13. There are seven schools in which wood and metal-work are taught, if we combine those that are exclusively teaching them with others that teach the same subjects side by side with other subjects. Each of the other subjects is taught at one school exclusively or two subjects only are taught in combination at one school.

The apprentice schools, all of them deriving aid from the fund, are as follows :—

Locality.	Name.	Subject taught.	No. of pupils.	No. of graduates.	Date of foundation.
Tokyo.	Tokyo Apprentice School.	Wood and metal-work.	51	—	Sept., 32nd.
Shizuoka.	Shizuoka Lacquer-work School.	Gold-dusting, lacquer-work.	—	—	Jun., 33rd.
Miyagi.	Sendai Technical School.	Wood and metal-work.	110	15	Sept., 29th.
Fukushima.	Aizu Lacquer-work School.	Lacquer-work.	12	—	Nov., 31st.
Do.	Hongo Pottery School.	Pottery.	50	31	Aug., 28th.
Yamagata.	Shōnai Dyeing and Weaving School.	Dyeing and weaving.	55	76	Dec., 28th.
Akita.	Akita Apprentice School.	Wood and metal work, lacquer-work	39	35	Apr., 29th.
Hyogo.	Tsuna-gun Pottery School.	Pottery.	37	19	Oct., 30th.
Miye.	Ominato Shipbuilding Apprentice School.	Shipbuilding (wood and metal-work).	86	8	Jul., 29th.
Aichi.	Seto Pottery School.	Pottery.	41	11	Nov., 28th.
Do.	Tokonabe Do.	Do.	25	12	Sept., 29th.
Gifu.	Toki Do.	Do.	56	—	Jul., 28th.
Ishikawa.	Yamanaka Lacquer-work School.	Lacquer-work.	—	—	Sept., 29th.
Wakayama.	Kishū Dyeing and Weaving School.	Dyeing and weaving.	38	7	Aug., 31st.
Do.	Kuroe Lacquer-work School.	Lacquer-work.	17	—	Do.
Hiroshima.	Hiroshima Technical School.	Wood and metal-work.	129	—	Sept., 30th.
Kagawa.	Kotohira Technical Apprentice School.	Do.	50	9	Apr., 31st.
Do.	Tadotsu Dyeing and Weaving School.	Dyeing and weaving.	8	16	Sept., 32nd.
Kumamoto.	Akuma Technical Apprentice School.	Lacquer and cabinet-work.	31	—	Apr., 33rd.
Do.	Kurutami Technical Apprentice School.	Paper, bamboo-work Printing.	30	—	Do.
Kagoshima.	Girls Apprentice Technical School.	Dyeing, weaving, embroidery, artificial-flower.	612	421	Oct., 27th.
	Total				21

Classified according to kind the foregoing schools can be divided as follows:—

Kind.	No. of schools.
Dyeing and weaving...	3
Metal and wood-work	5
Lacquer-work	4
Pottery	5
Shipbuilding	1
Others...	3
Total	21

Differing from the preceding case, here metal and wood-work and pottery are at the head of the list each with five schools, followed by those of lacquer-work, dyeing and weaving.

Commercial and technical supplementary schools next demand attention, for these subjects occupy at present a very important place in short-course commercial and technical education. It may be added that many of them are deriving state aid from the fund in question.

Locality.	Name.	Subject taught.	No. of students.	No. of graduates.	Date of foundation.
Tokyo.	Hongo Supplementary School.	Trade and technical subjects.	--	—	33rd.
Ōsaka.	Kanekame Supplementary School.	Do.	150	52	Mar., 27th.
Hyogo.	Minatogawa Supplementary School.	Do.	17	12	Jun., 29th.
Do.	Hyogo. Do.	Do.	13	5	May, 31st.
Nagasaki.	Nagasaki Supplementary School.	Do.	51	—	Apr., 32nd.
Chiba.	Otaki Technical Supplementary School.	Do.	—	[illegible]	Apr., 29th.
Tochigi.	Oyamada Do.	Technical subjects.	29	11	Oct., 29th.
Aichi.	Atsuta Supplementary School.	Trade and technical subjects.	124	41	Sept., 29th
Do.	Sakute Agriculture and Forestry Supplementary School.	Agriculture, foresty, sewing, weaving	91	—	Oct., 31st.
Do.	Chita-gun Supplementary School.	Brewing and commerce.	14	—	Apr., 31st.
Gifu.	Sakashita Supplementary School.	Sericulture and paper-making.	99	13	[illegible]
Nagano.	Komoro Supplementary School.	Agriculture, Commerce and technical subject.	38	—	Sept., 33rd.
Do.	Miyamurada Supplementary School.	Do.	53	—	Mar., 34th.

Locality.	Name.	Subject taught.	No. of students.	No. of graduates.	Date of foundation.
Do.	Nishiono Supplementary School.	Agriculture and technical subjects.	—	—	Do.
Do.	Ogawa-Ikuma Supplementary School.	Do.	—	—	Apr., 34th.
Aomori.	Hachinohe Supplementary School.	Sericulture and technical subjects.	—	61	Nov., 30th.
Toyama.	Ishiyurugi Supplementary School.	Technical subjects.	30	20	Sept., 29th.
Shimane.	Mishio-mura Supplementary School.	Agriculture and technical subjects.	22	—	Apr., 33rd.
Okayama.	Kojima Supplementary School.	Dyeing.	132	132	Apr., 28th.
Do.	Akaiwa Supplementary School.	Do.	80	—	Apr., 34th.
Hiroshima.	Takewara Supplementary School.	Agriculture and technical subjects.	22	21	Apr., 28th.
Do.	Kumano Supplementary School.	Do.	98	62	Sept., 29th.
Do.	Yamagata Nishi-gun Sup'tary School.	Do.	10	—	Sept., 33rd.
Kagawa.	Shioaki Technical Sup'tary School.	Do.	61	21	Jun., 30th.
Do.	Omi Supplementary School.	Technical subjects.	24	3	Aug., 30th.
Kōchi.	Supplementary School (by 6 villages).	Agriculture and technical subjects.	80	112	Apr., 28th.
Do.	Takaoka Girl's Supplementary School.	Sewing and weaving.	112	21	May, 29th.
Do.	Sogawa Supplementary School.	Weaving, sericulture, weaving.	76	60	Apr., 28th.
Kumamoto.	Yabe Supplementary School.	Agriculture, technical subjects, commerce	129	107	Dec., 29th.
Kagoshima.	Isa Boys' Supplementary School.	Agriculture and technical subjects.	65	56	Mar., 28th.
Do.	Isa Girls' Supplementary School.	Technical subjects.	151	78	Mar., 26th.
Do.	Ichiki Girls' Supplementary School.	Do.	23	8	Dec., 29th.
Do.	Takayama Girls' Supplementary School.	Do.	32	—	Jun., 32nd.
Okinawa.	Shuri Girls' Supplementary School.	Do.	77	17	Apr., 30th.
	Total				34

Of the schools mentioned above, some of which are maintained by communities, others by private individuals, those that are exclusively devoted to technical matters are 12, those that combine agri-

cultural, technical and commercial matters 16, the remaining 6 being of a miscellaneous character. Most of those schools are attached to primary schools for the benefit of those who cannot attend school in the day time.

III. APPRENTICE SYSTEM.

FORMERLY the apprentice system prevailed universally in all branches of technical and manufacturing work, but with the introdution of the Western system of manufacture and technical work this custom has began to loss its importance. The scope of the apprentice system has gradually dwindled down, and at present it only retains any semblance of its former status in such ancent lines of business as hand-weaving, pottery, and the dyeing business. In new branches of work this apprentice system is found even in factories of small scope. Sometimes even in big factories the system is retained to some extent, as master craftmen engaged in shipbuilding and other works often take under them a number of boys whom they employ at the factories they attend. However, taking all things into consideration, and especially with the greater necessity of division of labor in most branches of technical work and manufacture, the days of the apprentice system are doomed, to be superseded by regular mode of education.

CHAPTER—VI.

Organized bodies relating to the Manufacturing Industry.

That combination of persons having common interests in the prosperity of a given branch of manufacture and industry, so universal nowadays, was first seen in this country in the organization in October 15th year of the spinners' union which exists to-day in a somewhat modified form. It undertakes all matters judged to further the common interests of the members; dispatches, for instance, merchants or experts to Bombay to inspect the condition of the cotton market or of the cotton crop, enters into contracts with the Yusen Kaisha for the import of raw cotton from Bombay. Matters about the regulations of staple commodities guilds have already been mentioned elsewhere, and it is sufficient to state here that at present the organized bodies created for protecting their own respective interests numbers 192 in all.

CHAPTER—VII.

Associations relating to Manufacture and Technical Affairs

SCIENTIFIC associations relating to manufacture and technical affairs exist in large numbers, the principal of them being :—

Name.	Locate.	Object.	Date of foundation.
Engineering Society.	Yamashiro-cho, Tokyo.	To promote technical science and arts.	Jan., 12th.
Japan Weaving Society.	Nicho-machi, Tokyo.	To promote weaving.	18th.
Tokyo Carving Society.	Naka-okachimachi, Tokyo.	To promote the applied art of carving.	Aug., 21th.
Electric Society.	Sanjikken-bori, Tokyo.	To promote the science and art of electricity.	June, 21st.
Japan Lacquer-work Society.	Yumi-cho, Tokyo.	To promote the lacquer art industry.	Nov., 23rd.
Japan Keramic Society.	Onoko-cho, Tokyo.	To promote the keramic industry.	Sept., 25th.
Technological Society.	Yamashiro-cho, Tokyo.	To promote the development of technical science and art.	Dec., 29th.
Mechanical Engineering Society.	Owari-cho, Tokyo.	To promote the science and art of mechanical engineering.	June, 30th.
Shipbuilding Society.	Yamashiro-cho, Tokyo.	To promote the science and art of shipbuilding.	April, 30th.
Society of Chemical Technology.	Nishiki-cho, Tokyo.	To promote the art of chemical industry.	Feb., 31st.
Tokyo Export Metallic Ware Society.	Uyeno Park, Tokyo.	To promote the business of export metallic ware.	Feb., 35th.
Japan Metallic art Society.	Do.	To promote the art and business of the metallic art.	Mar., 35th.
Central Weaving Society.	Nagoya, Aichi.	To promote the weaving industry.	Dec., 32nd.

Most of the foregoing societies publish proceedings, some of these publications being :—

Proceedings of the Engineering Society, the Japan Keramic Art Society, the Technological Society, the Mechanical Engineering Society, the Shipbuilding Society, the Society of Chemical Technology, etc.

PLACES OF PRODUCE OF STAPLE COMMODITIES, THEIR OUTPUT AND FOREIGN MARKETS.

"HABUTAYE" (unit of *yen*).

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Kyoto.....	308,942	372,263	834,109	853,877	1,063,994
Niigata	76,097	124,474	298,563	452,360	409,094
Saitama ...	221,989	232,838	276,452	555,955	338,071
Gumma	2,945,905	3,183,234	3,394,275	1,349,827	2,361,305
Tochigi	2,005,564	2,116,282	2,084,150	460,109	93,155
Miye	21,048	21,499	22,262	39,729	81,230
Aichi	21,015	47,243	57,130	313,089	371,076
Gifu	1,752,427	1,040,154	1,184,141	998,065	832,349
Nagano	109,614	229,525	178,388	134,332	181,780
Miyagi	23,716	47,755	114,615	137,724	180,293
Fukushima...	362,098	666,588	1,365,608	2,265,435	2,719,335
Yamagata ...	37,604	78,625	90,400	163,542	209,800
Fukui.....	6,004,426	7,400,219	8,529,420	13,786,352	11,651,264
Ishikawa.....	789,455	1,150,014	1,907,360	5,400,305	3,559,017
Toyama	412,656	786,274	946,424	2,255,737	1,383,537
Tottori	20,316	21,883	53,295	62,051	59,264

Foreign markets:—Australia, Austria-Hungary, Belgium, British America, British India, China, Korea, Dutch India, Egypt, France, Germany, Great Britain, Hawaii, Hongkong, Italy, Mexico, Philippine Islands, Russia, Spain, Switzerland, Turkey, and United States of America.

"KAIKI" (unit of *yen*).

Kanagawa...	58,364	10,770	117,188	83,950	63,560
Gumma.. ...	1,233,710	1,415,986	1,493,910	1,812,379	2,045,624
Tochigi	234,670	1,411,268	1,441,896	1,922,316	339,448
Yamanashi...	2,081,774	2,245,388	1,969,296	2,435,601	5,017,206

Foreign markets:—Australia, Belgium, British America, British India, China, Korea, France, Germany, Great Britain, Hawaii, Holland, Hongkong, and United States of America.

CREPE SILK (unit of *yen*).

Kyoto.....	5,540,155	5,636,083	5,326,858	8,362,433	6,754,236
Hyogo.....	70,000	70,750	72,500	88,577	121,600
Gumma	89,919	107,411	100,343	157,485	226,252

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Tochigi	26,671	5,330	3,135	41,968	375,222
Shiga	2,349,283	2,414,641	2,377,831	2,446,291	1,410,701
Gifu	249,128	625,332	286,723	270,633	364,438
Nagano	34,734	50,103	588,827	51,407	71,049

Foreign markets:—Australia, British India, China, Korea, Dutch India, France, Great Britain, Hawaii, Holland, Philippine Islands, Russian Asia, Turkey and United States of America.

SILK HANDKERCHIEF (unit of *yen*).

Kyoto.....	—	—	—	1,282,515	905,652
Kanagawa ...	487,567	3,390,145	3,555,115	—	—
Gumma	—	—	—	39,649	48,738
Aichi	—	816,808	485,165	—	277,783
Gifu	—	7,286	51,993	55,700	—
Ishikawa ...	63,349	—	—	18,225	43,330

Foreign markets:—Australia, British America, British India, China, Denmark, Egypt, France, Germany, Great Britain, Hawaii, Hongkong, Italy, Mexico, Russia, Philippine Islands, Russian Asia, Spain, Turkey and United States of America.

SILK GOODS (unit of *yen*).

Kyoto.....	—	274,737	324,514	325,273	284,856
Ishikawa ...	—	—	—	40,000	7,200

Foreign markets:—As above.

COTTON YARN (unit of *yen*).

Tokyo.....	2,213,766	2,129,863	2,098,139	2,278,953	—
Kyoto.....	194,072	363,420	701,694	821,880	—
Ōsaka.....	8,476,015	9,733,589	11,049,921	12,264,578	—
Hyogo	1,048,431	3,034,838	5,287,532	4,954,766	—
Nara	466,289	383,682	667,377	1,114,763	—
Miye	1,511,300	1,578,389	1,829,658	2,380,858	—
Aichi	1,265,113	1,735,323	1,868,036	2,242,658	—
Okayama ...	1,878,067	3,030,852	3,741,825	3,743,899	—
Hiroshima...	493,769	534,658	850,640	912,591	—
Wakayama...	434,446	495,730	667,734	791,763	—
Kagawa	—	95,505	328,980	363,557	—
Ehime	431,882	561,824	580,405	704,740	—
Fukuoka ...	990,467	1,148,444	1,493,243	1,681,073	—

Foreign markets:—British India, China, Korea, French India, Hongkong, Philippine Islands, and Russian Asia.

WHITE COTTON CLOTH (unit of *yen*).

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Kyoto.....	172,146	230,053	199,676	133,083	132,117
Ōsaka.....	1,322,242	1,377,983	2,045,027	2,250,525	3,092,800
Hyogo	194,953	191,547	148,718	92,244	139,140
Niigata	123,574	133,222	106,776	114,281	374,699
Saitama ...	761,373	617,575	511,234	587,902	633,217
Ibaragi	97,709	38,497	42,296	74,110	50,045
Tochigi	56,260	86,038	58,706	176,901	87,714
Nara	1,161,062	1,140,012	1,196,287	1,580,306	1,377,246
Miye	72,695	317,852	303,722	128,301	182,404
Aichi	3,555,901	4,357,627	5,182,886	5,198,111	6,260,721
Shizuoka ...	36,430	32,324	25,754	37,683	72,616
Toyama	119,789	87,729	15,468	219,535	160,938
Okayama ...	112,655	146,156	235,007	237,171	484,504
Hiroshima ...	231,023	176,949	162,654	208,700	218,369
Yamaguchi...	260,159	146,584	130,077	73,001	132,888
Wakayama ..	200,178	215,254	228,217	205,279	193,247
Kagawa	106,887	108,520	93,985	147,399	163,351
Ehime	908,256	166,064	3,108,010	802,148	1,035,493

Foreign markets:—China, Korea and Hongkong.

GREY SHIRTING (unit of *yen*).

Ōsaka.....	419,370	406,695	538,765	601,564	1,106,736
Wakayama...	—	109,029	162,444	—	—

Foreign markets:—British India, China, Korea, and Hongkong.

T.—CLOTHS (unit of *yen*).

Ōsaka.....	—	—	—	206,858	393,044
Miye	—	—	306,447	135,000	502,188

Foreign markets:—China, Korea and Hongkong.

COTTON FLANNEL (unit of *yen*).

Kyoto.....	1,991,013	1,803,634	2,480,254	3,409,779	3,757,642
Ōsaka.....	646,997	404,719	526,877	556,524	761,671
Hyogo	99,586	74,767	99,889	94,403	102,005
Aichi	19,529	27,799	26,467	55,539	64,285
Shiga	72,343	134,018	88,745	77,475	133,145
Toyama	5,593	13,700	13,153	2,800	61,740
Okayama ...	74,110	162,276	191,330	270,190	242,964

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Hiroshima ...	69,689	59,002	39,378	78,664	56,354
Wakayama...	3,511,764	4,137,745	5,260,376	3,237,217	3,440,709
Tokushima...	575,204	659,643	100,148	389,441	340,882
Ehime	161,218	39,241	79,036	444,863	514,753

Foreign markets:—British India, China, Korea, Hongkong, Philippine Islands and Russian Asia.

COTTON CREPE (unit of *yen*).

Gumma	77,566	73,194	51,639	96,980	183,860
Tochigi	419,892	645,164	593,578	1,603,226	941,931
Nara	6,780	62,176	58,534	94,338	50,318
Aichi	6,220	890	60	78,201	128,910
Shiga	149,626	122,465	158,526	180,275	364,242
Toyama	21,810	935	1,396	24,794	71,851
Shimane.....	75,783	92,993	92,477	123,273	183,880
Yamaguchi...	235,702	152,484	145,689	169,454	213,251
Tokushima...	237,301	45,637	107,929	131,505	198,871

Foreign markets:—Australia, British India, China, Korea, Germany, Great Britain, Hawaii, Hongkong, Philippine Islands, Russian Asia and United States of America.

MATCHES (unit of *yen*).

Tokyo.....	283,265	265,919	207,040	216,874	226,979
Ōsaka.....	1,055,562	1,236,498	869,691	999,665	842,403
Hyogo	3,166,541	3,585,523	3,899,994	2,559,861	2,997,327
Niigata	60,774	67,051	65,849	48,050	68,260
Aichi	381,489	837,045	825,998	1,407,581	943,089
Shizuoka ...	63,520	43,542	62,313	68,306	128,644
Okayama ...	21,429	36,774	32,182	57,348	65,084
Hiroshima ...	84,248	140,055	160,934	185,865	222,277
Kagawa	106,778	118,055	80,660	127,923	186,593

Foreign markets:—Australia, British India, China, Korea, Hongkong, Philippine Islands, Russian Asia and United States of America.

MATS (unit of *yen*).

Ishikawa ...	12,235	59,855	36,894	16,481	66,876
Okayama ...	779,557	1,126,258	659,874	1,088,603	1,367,332
Hiroshima ...	676,512	1,409,277	861,009	744,475	887,741
Kagawa	63,406	48,373	42,849	49,874	66,701

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Fukuoka ...	229,482	271,492	220,404	420,779	479,439
Ōita	320,414	218,739	171,302	53,043	75,279

Foreign markets:—Australia, British America, British India, China, Korea, France, Germany, Great Britain, Hawaii, Holland, Hongkong, Italy, Philippine Islands, Russian Asia and United States of America.

STRAW-PLAITS (unit of *yen*).

Tokyo	126,360	96,000	114,600	69,000	62,500
Aichi	333,230	201,144	344,532	582,936	467,725
Okayama ...	1,294,727	1,043,941	1,193,094	1,772,807	1,796,513
Hiroshima ...	177,912	100,052	81,170	56,778	76,028
Kagawa	87,147	115,968	147,109	119,031	378,686

Foreign markets:—Australia, Belgium, British America, France, Germany, Great Britain, Hawaii, Hongkong, Italy, Philippine Islands and United States of America.

PORCELAIN AND EARTHEN WARE (unit of *yen*).

Tokyo.....	49,572	55,591	51,891	40,042	70,953
Kyoto.....	438,375	360,413	366,563	528,121	705,339
Kanagawa...	17,200	15,000	15,000	143,300	152,900
Hyogo	127,335	134,893	134,616	131,158	180,883
Nagasaki ...	115,991	102,677	82,210	76,930	107,770
Tochigi	40,082	46,959	53,399	49,208	53,609
Miye	88,854	98,231	97,035	86,083	145,687
Aichi	1,541,954	1,571,761	1,494,864	1,363,563	2,171,404
Shiga.....	54,477	111,730	105,703	123,603	127,238
Gifu	1,177,573	1,155,962	878,415	972,944	1,004,836
Fukushima...	109,837	135,922	139,872	162,784	182,369
Ishikawa ...	239,381	176,267	248,947	308,362	322,183
Shimane.....	67,431	80,893	86,570	103,826	122,509
Okayama ...	37,330	35,996	45,357	431,163	79,552
Yamaguchi...	57,716	70,008	76,688	109,254	120,103
Kagawa	30,247	29,048	36,678	44,054	55,222
Ehime	105,937	108,705	92,609	118,751	191,800
Saga	623,510	529,465	612,535	692,224	649,915

Foreign markets:—Australia, Belgium, British America, British India, China, Korea, Denmark, Dutch India, Egypt, France, French India, Germany, Great Britain, Hawaii, Holland, Hongkong, Italy, Mexico, Philippine Islands, Russia, Russian Asia, Siam, Spain, Sweden and Norway, Turkey and United States of America.

UMBRELLA (unit of *yen*).

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Tokyo.....	2,087,436	—	1,378,620	1,486,950	1,534,432
Kyoto.....	—	—	—	200,000	210,000
Ōsaka.....	1,876,994	2,181,064	2,201,888	2,458,519	—
Nagasaki ...	—	39,868	50,010	51,522	110,500

Foreign markets:—British India, China, Korea, Hawaii, Hongkong, Philippine Islands, Russian Asia and United States of America.

LACQUER-WARE (unit of *yen*).

Tokyo.....	27,992	30,829	28,887	42,408	85,652
Kyoto.....	260,000	532,400	425,920	686,076	610,422
Ōsaka.....	74,186	171,224	134,360	119,845	149,297
Kanagawa...	230,192	232,003	480,695	358,995	350,755
Hyogo	37,520	35,551	34,584	33,993	52,376
Niigata	63,763	55,976	53,422	57,796	89,704
Nara	35,136	40,636	55,215	65,462	84,954
Miye	39,775	60,051	71,939	53,293	138,465
Aichi	85,339	118,850	104,530	105,392	245,892
Shizuoka ...	385,720	248,960	452,600	530,600	619,200
Shiga	113,285	180,265	228,181	227,398	244,563
Nagano	104,749	98,464	86,471	182,104	133,097
Miyagi	38,447	45,522	49,220	51,005	63,082
Fukushima...	210,059	296,470	308,056	429,752	459,290
Yamagata ...	48,634	52,905	57,098	60,308	66,159
Fukui	64,128	75,554	77,721	117,223	136,551
Ishikawa ...	359,194	464,724	450,851	499,650	639,160
Toyama.....	96,525	110,735	148,694	169,879	164,842
Hiroshima...	62,409	37,318	127,150	152,425	126,503
Wakayama...	577,702	781,133	894,500	1,202,400	1,303,612
Tokushima...	80,945	79,125	72,760	14,400	74,400
Kagawa.....	26,242	64,735	133,598	131,525	129,083
Ehime	72,685	74,057	142,115	151,541	92,826

Foreign markets:—Australia, Belgium, British America, British India, China, Korea Denmark, Dutch India, Egypt, France, French India, Germany, Great Britain, Hawaii, Holland, Hongkong, Italy, Philippine Islands, Russia, Russian Asia, Spain, Turkey and United States of America.

FANS, FOLDED AND ROUND (unit of *yen*).

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Tokyo	—	—	—	—	43,676
Kyoto.....	686,500	583,524	480,312	381,437	326,142
Ōsaka.....	177,848	272,355	263,396	342,275	—
Aichi	353,532	321,190	304,288	334,581	237,234
Gifu	15,340	51,028	55,892	32,817	33,102
Nara	—	—	—	—	14,640
Kagawa.....	178,932	182,029	180,710	233,240	232,910
Kumamoto...	19,887	22,111	19,050	32,754	-

Foreign markets:—Australia, British America, British India, China, Egypt, France, Germany, Great Britain, Hongkong, Italy, Mexico, Philippine Islands, Spain and United States of America.

RUGS (unit of *yen*).

Ōsaka.....	1,121,147	1,140,014	943,578	1,006,294	1,739,354
Hyogo	25,195	135,695	67,613	12,658	14,710

Foreign markets:—Australia, Belgium, British America, British India, China, Korea, France, Egypt, Germany, Great Britain, Hawaii, Holland, Hongkong, Philippine Islands, United States of America and Russian Asia.

WOODEN WARE (unit of *yen*).

Kanagawa...	389,725	23,305	25,470	—	—
Miyagi	—	24,596	33,335	—	—
Ishikawa ...	27,500	33,300	43,523	—	—
Kumamoto...	20,235	44,954	41,077	—	—

Foreign markets:—Australia, British America, British India, China, Korea, Dutch India, France, Germany, Great Britain, Hawaii, Hongkong, Italy, Philippine Islands, Russian Asia, Russia, and United States of America.

PAPER (unit of *yen*).

Tokyo.....	283,855	310,541	325,204	711,617	573,952
Kyoto.....	79,415	95,414	141,356	188,267	155,133
Ōsaka.....	40,885	45,741	31,992	41,263	65,104
Hyogo	304,274	685,342	351,401	543,468	538,292
Niigata	43,493	55,370	77,722	40,680	70,242
Saitama ...	209,387	215,790	262,676	218,718	163,573
Ibaragi	60,332	111,012	112,050	72,527	90,037
Tochigi	41,898	46,969	138,538	140,308	62,507
Nara	52,698	57,817	80,010	44,562	87,767

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Miye	103,263	185,717	99,577	150,835	124,007
Shizuoka ...	842,089	870,941	962,684	245,043	1,001,665
Yamanashi...	51,228	125,094	107,634	127,867	125,449
Gifu	1,261,889	1,871,709	997,969	1,081,627	1,103,455
Nagano	396,422	475,975	519,321	272,270	340,463
Miyagi	87,099	182,762	113,681	105,950	114,932
Fukushima...	104,947	82,937	167,957	141,348	147,883
Iwate	60,227	121,390	130,001	100,850	60,134
Yamagata ...	32,925	43,269	52,084	55,372	52,950
Fukui.....	167,230	156,632	226,239	288,657	299,467
Ishikawa ...	40,533	45,492	160,692	64,479	89,619
Toyama	213,402	137,979	129,391	130,161	117,242
Tottori	104,502	116,527	156,702	186,967	180,700
Shimane.....	242,176	313,134	329,694	305,094	343,850
Okayama ...	167,836	269,078	214,323	356,251	477,384
Hiroshima ...	177,669	200,866	182,445	179,062	252,286
Yamaguchi...	460,639	549,104	504,286	579,332	678,631
Wakayama...	65,055	57,077	90,998	106,394	165,793
Tokushima...	163,528	248,919	419,990	155,145	184,500
Kagawa	242,776	253,795	164,045	51,964	266,034
Ehime	1,298,224	993,578	837,154	1,161,555	1,329,924
Kōchi.....	1,505,322	2,094,454	2,631,601	2,213,320	2,922,119
Fukuoka ...	492,735	437,732	500,101	662,742	678,796
Ōita	152,418	176,999	167,267	189,495	170,518
Saga	157,217	215,950	212,381	261,102	230,651
Kumamoto...	219,600	221,250	272,216	319,978	291,849
Miyasaki ...	177,344	187,676	227,030	196,140	134,484
Kagoshima...	88,921	120,919	62,898	91,703	120,847

Foreign markets:—China, France, Germany, Great Britain, United States of America, Australia, Hongkong, British America, British India, and Dutch India.

PAPER WARE (unit of *yen*).

Kyoto.....	—	—	—	24,560	25,870
Gifu	73,900	361,500	154,196	419,674	493,360

Foreign markets:—Australia, British America, British India China, Korea, Egypt, France, Germany, Great Britain, Hongkong, Mexico, Russia and United States of America.

BAMBOO WARE (unit of *yen*).

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Hyogo	—	150,000	160,000	—	484,739
Shizuoka ...	14,083	33,470	34,140	36,190	38,000
Iwate	12,966	16,037	10,188	—	—
Ishikawa ...	10,807	13,261	15,913	—	—
Ehime	7,575	—	—	—	12,000
Kumamoto...	13,194	14,225	9,591	—	—

Foreign markets:—Australia, British America, British India, China, Korea, Egypt, France, Germany, Great Britain, Hawaii, Holland, Hongkong, Philippine Islands, Russian Asia and United States of America.

BRUSHES (unit of *yen*).

Ōsaka.....	—	689,424	828,348	229,348	—

Foreign markets:—Australia, British America, British India, China, Great Britain, Hongkong, United States of America, Philippine Islands and Russian Asia.

GLASS WARE (lamps excepted; unit of *yen*).

Tokyo	715,825	256,326	344,478	469,460	621,295
Ōsaka.....	548,104	801,631	864,416	867,501	960,923
Kanagawa ...	62,972	19,594	56,202	—	135,900
Aichi	—	40,760	76,775	90,000	100,000

Foreign markets:—British India, China, Korea, Great Britain, Hongkong, Philippine Islands, Russian Asia and United States of America.

SCREENS (unit of *yen*).

Kyoto.....	—	—	74,750	90,775	95,017
Hyogo	252,330	266,500	253,742	—	215,000

Foreign markets:—Australia, Belgium, British America, British India, China, Dutch India, France, Germany, Great Britain, Hawaii, Holland, Hongkong, Italy, Philippine Islands, Russia, Russian Asia, and United States of America.

"SHIPPŌKI" (cloisonné).
(unit of *yen*).

Kyoto.....	47,854	44,738	43,568	58,823	72,347
Aichi	223,066	175,104	107,987	206,828	448,230

Foreign markets:—Australia, Belgium, British America, British India, China, Egypt, France, Germany, Great Britain, Hongkong, Russia, Russian Asia, and United States of America.

BRONZE AND COPPER WARE (unit of *yen*).

Principal places of produce.	29th.	30th.	31st.	32nd.	33rd.
Kyoto.....	294,164	510,143	556,974	476,000	400,700
Ōsaka.....	54,289	67,018	66,569	224,039	—
Aichi	48,866	48,095	50,862	58,205	56,676
Ishikawa ...	50,250	30,000	19,700	17,600	165,660
Toyama	224,480	231,730	278,076	319,544	302,250

Foreign markets:—British India, China, Egypt, France, Germany, Great Britain, Hongkong, Russia, Russian Asia, and United States of America.

Of the other goods ranking next in importance to those given above, towels, lamps, buttons, cotton under-shirts, cotton knit-work, shoes and boots, stockings, imitation foreign paper, cotton blankets, towel cloth, clocks, furniture, jinrikisha, leather-goods, lanterns, toilet-soap, ivory-goods, etc. may be mentioned.

CHAPTER VIII.—Protection of Industrial Property.

General Remarks.—Protection of Patents, Designs, and Trade-Marks—Protection of Foreign Patent, Designs, and Trade-Marks—Resume of Existing Regulations—Provisions of Importance to Foreigners—Statistics of Japanese and Foreign Patents, Designs and Trade-Marks.

I. GENERAL REMARKS.

The legislative measures relating to the protection of the right of industrial property comprise in regard to patent-right, designs, and trade-marks the Law of Patent-right (amended in the existing form in March 32nd year), the Law of Designs (as before), and the Law of Trade-marks (as before), intended to guarantee the security of the right of both Japanese and foreign inventors and also to ensure honest dealings in business. Similarly illegitimate competition in the matter of house-marks are guarded by the provisions of the Commercial Code (Chapter 4, Part I. of the Code issued in March 33rd year). Measures for providing against illegitimate practices other than those connected with house-marks are incomplete, the only provision existing in this direction being confined to prohibition by the Customs Tariff Law (March 30th year) of the import of substances spuriously imitating articles covered by patent-right or registered designs or trade-marks. There is no provision for prohibiting the false representation of the place of production. However, the legislative measures for protecting the right of industrial property have lately been carried to a satisfactory state, especially in regard to patents, designs, and trade-marks, as will be described briefly below.

II. HISTORY RELATING TO THE PROTECTION OF PATENTS, DESIGNS AND TRADE-MARKS.

Although the legislation relating to patents, designs and trade-marks was only enacted quite recently, comparatively speaking, this does not of course mean that the Japanese were destitute of inventions or designs. On the contrary many facts may be enunciated proving that the people did not lack the talent to invent and design. For instance, the arts of keramics, lacquer-ware, weaving, etc. that were originally imported from China have been carried to a special state of perfection by the genius of the people, who also have displayed such an original and striking taste of their own in the matter of designs as to have won special attention for our goods in foreign markets.

However, the idea of protecting inventors and thus encouraging the development of manufacture was not adopted in Japan till the advent of the Government of this era. It is true that from about the time of the Ashikaga Regency a certain sort of monopoly was accorded to manufacturers and technical experts, but this protection was extended with the object of increasing the revenue of the feudal princes that exercised this privilege rather than from that of encouraging invention and designs. In a similar way the protection of trade-marks dated from the Restoration and was enforced because a necessity was felt with the development of Japanese trade and that of foreign trade, to adopt suitable measures for protecting trade--marks.

The first legislative measure for protecting inventions was promulgated in April 4th year, to be rescinded a year after, and for about fourteen years from that time Japanese inventors were left unprotected. We do not mean to say that an invention of meritorious character was not recognized by the Government, for by establishing in December 14th year the Regulations for Recognizing Meritorious Acts inventors of distinguished merit were rewarded with the Blue-ribbon medals included in the regulations. In June 17th year the regulations for protecting trade-marks were enacted, and in the following year the regulations relating to the protection of

patents. In consequence of the restoration of the regulations, 326 cases of invention that had been reported to the local offices subsequent to the 5th year were brought under the protection of the regulations. But it was not till December of the 22nd year that the regulations relating to designs were first elaborated, and at the same time the two cognate legislative measures already existing were amended, this amendment extended to all three ten years later as they exist to-day.

III. PROTECTION OF FOREIGN PATENTS, DESIGNS AND TRADE-MARKS.

With the putting in operation of the revised treaties on July 17th, 32nd year (on Aug. 4 of the same year with France and Austria-Hungary), the three laws of patent, designs and trade-marks which, like all other laws of the land, had been limited in operation to the Japanese people alone, came to extend to foreigners residing in this country.

The dates of the conclusion of revised treaties with different treaty countries are as follows:—

Great Britain and Ireland	July 16, 27th.
United States of America	Nov. 22, 27th.
Italy	Dec. 1, 27th.
Peru	Mar. 20th, 28th.
Russia	June. 8th, 28th.
Denmark	Oct. 19, 28th.
Germany	Apr. 4, 29th.
Sweden-Norway...	May. 2, 29th.
Belgium	June. 2, 29th.
France	Aug. 4, 29th.
Netherland	Sept. 8, 29th.
Switzerland	Nov. 10, 29th.
Spain	Jan. 2, 30th.
Portugal	Jan. 26, 30th.
Austria-Hungary	Dec. 5, 30th.

The revised treaties cover the protection of foreign patents, designs and trade-marks, but according to the agreement between

Japan and Germany it was arranged to put in force this protection of patents, designs and trade-marks from the day of the exchange of ratification of the treaties, that is November 18th, of the 29th year, and this agreement ensured for the first time in the history of Japan the protection of the rights of foreigners in regard to patents, designs and trade-marks. However, with the rest of the treaty Powers the date of the exchange of this mutual pretection was specified as follows:—

Great Britain and Ireland...	Jan. 4, 34th.
United States of America	Mar. 8, 34th.
Switzerland	July. 9, 34th.
Portugal	Aug. 30, 34th.
Italy	Oct. 12, 34th.
Denmark	Jan. 10, 31st.
Netherland	Feb. 1, 31st.
Sweden-Norway	Feb. 15, 31st.
Belgium...	Mar. 11, 31st.
Spain	Sept. 1, 31st.
Austria-Hungary	Nov. 30, 31st.

It is needless to say that a similar protection was extended with the coming in operation of the revised treaties to all the rest of the treaty Powers whose treaties concluded with Japan contained provisions relating to the exchange of this protection.

The protocol appended to the treaty concluded between Japan and England in July 27th year, and the treaties subsequently concluded with the rest of the countries specified the entrance of Japan into the International League for the Protection of Industrial Property, and in pursuance of that agreement Japan joined the League on July 15th, 32nd year.

It will be seen that with the provisions relating to the protection of industrial property of foreigners enforced prior to the coming into operation of the revised treaties in virtue of which Japan, and with the joining of Japan to the International League in question, Japan has completed, as no other country in the Far East has completed, all necessary arrangements required for protecting foreigners in the matter of industrial property.

IV. RESUME OF THE EXISTING SYSTEM.

General Remarks:—According to the existing system all matters relating to patents, designs and trade-marks are controlled by the Patent Bureau of the Department of Agriculture and Commerce, which adopts the regular system of examination before granting a license in answer to application for patents or before registering a design or trade-mark sent in for registration. An applicant is entitled to appeal for re-examination or for the judgment of the Comptrollers in case the application has been rejected. All cases relating to the invalidity of patents or registrations or to the confirmation of the respective rights are attended to by the Bureau, but when any decision of the Bureau is regarded as being at variance with the law, an applicant may appeal to the court of cassation whose decision is final. Then a provisional protection is extended to exhibits in exhibitions or similar undertakings. Patent agents are subject to the control of the Patent Bureau. The agents duly registered in the list of the Bureau number 193 (according to the returns made in June of the 35th year.)

Principal clauses in the law of patents:—The Law extends protection according to priority (Art. I), while the following inventions are not patentable:—(a) articles of diet and relishes, (b) drugs and modes of compounding them, (c) matters prejudicial to public order or morals, (d) matters publicly known prior to the filing of claims (excepting those cases in which, owing to the necessity of trial examinations, the matter embodied in the claim came to public knowledge not more than two years prior to the filing of the application). Then for an additional invention based on the original one, an additional letter-patent may be obtained (Art. II.), a smaller fee being paid both for application and for license. Patents are valid (Art. XIX.) for 15 years from the date of registration in the official record, and (Art. III.) every year after the issue of the letter-patent the fee is to be paid in advance according to a fixed rate while, for an additional invention based on the original one, the payment of 20 *yen* at one time covers the

whole period of the validity of the patent. Further (Arts. XXXIX & XL.) (*a*) when a patentee who does not exploit in Japan and without justifiable cause his own invention within three years from the issue of the license or suspenses such exploitation for three years refuses to transfer his right under reasonable condition to a third party when the latter has applied to him for the said transfer or for permission to use the right; (*b*) when a patentee fails to pay in the fee for more than 60 days from the date on which he should have forwarded it; (*c*) when a patentee not residing in Japan fails to appoint for more than six months and without justifiable reason a proper attorney; in all such cases the Chief of the Bureau is entitled to revoke the patent.

Principal clauses in the Law of Designs:—The designs as protected by the existing Law are those of artistic type used in the form of shape, coloration or figure as applied to industrial property (Art. I); but designs of the following description are excluded from protection under this head. (*A*) shape or figure resembling the Imperial coat of arms, the chrysanthemum, (*b*) figures that are prejudicial to the public order or morals, (*c*) those that have been publicly known prior to the filing of the application or figures &c. resembling those already publicly known (Art. II.) The protection is of course determined according to priority (Art. II, Clause 3, Art. VIII.) The validity of the right of exclusive use of a design is limited to objects of specified classification as represented by the applicant (Art. IV), and this validity holds good for 10 years from the time of the registration in the official records (Art. III.) A similar process to that employed in the case of patents is in force in paying fees on the occasion of filing application, of paying the annual fee after registration; but for a design resembling one previously registered by the applicant, the rate is lower. In a similar way the registered design may lose its validity when the payment of the fee is neglected for more than 60 days or when the grantee of registration not residing in Japan fails to appoint within six months a qualified attorney residing in this country.

Principal clauses in the Law of Trade-marks :—The Law protects all those trade-marks except those (*a*) that are identical to or resemble in form the Imperial coat of arms, the chrysanthemum; (*b*) that are identical to or resemble in form the national flags, military or naval flags, or decorations of this country, or national flags of foreign countries; (*c*) that are prejudicial to public order or morals or are likely to impose upon the public; (*d*) that are identical to or resemble other registered trade-marks or, when they are to be used for articles of the same nature, to those for which one full year has not elapsed after they have lost validity; (*e*) that are identical to or resemble trade-marks which are used by other people prior to the enforcement of the existing Law; (*f*) that are simply the ordinary mode of designating goods or places of produce, or the characters, devise or marks customarily used in trade to denote a special grade or quality or shape of the goods, or that are only the ordinary style of writing names, house-names, or names of companies or firms (Arts. I & II). However , a mark of an interest organized under approval of the authorities may be used as a trade-mark and protected accordingly (Art. XXI.) As in the two preceding cases priority secures protection over all others coming subsequently (Arts. II & VIII), but the validity of an exclusive trade-mark is limited to the special class of objects originally indicated by the applicant (Art. V.). The term of validity of the exclusive use of a trade-mark is to last for 20 years, and to be open to renewal (Arts. III and V.). The fee is payable with the registration of a trade-mark applied for (Art. XIII of the Law and Arts. 7 and 13 of the Regulation for putting it in Operation). Finally a registered trade-mark is liable to lose its validity in case (*a*) the place of produce, the quality, etc. of the goods for which it is used are falsely represented subsequent to its registration, (*b*) or when in case the applicant who does not reside in the Japanese dominions, does not appoint within six months from the date of the registration a qualified attorney residing in this country (Art. XI.)

V. PROVISIONS THAT SPECIALLY RELATE TO FOREIGNERS.

To enumerate those provisions in the existing laws, that specially relate to foreigners, when a foreigner not residing in Japan wishes to secure a letter-patent or to have his design or trade-mark registered, he must file in an application through his attorney appointed from among those in this country and must further appoint, when his application has been accepted by the Patent Bureau, an attorney to represent him in all dealings with the Burean and in all possible civil or criminal actions. The neglect to appoint such an attorney without justifiable reason within six months will invalidate, as mentioned above. the efficacy of his patents or registration (The Law of Patent Arts. VI, and XXXVIII : Law of Designs Arts. XXII and XII.; Law of Trade-mark, Arts. XX and XI.)

Any document intended to be filed in the Bureau must be written in Japanese, and when it is drawn up in any other language Japanese translation must accompany the original. Further a foreigner who is not residing in Japan must submit a document properly certifying his nationality, domicile and place of business (Art. III, IV, IX of the Regulations for putting the Law of Patent in Operation : Arts. VIII of the Regulations for putting the Law of Designs in Operation ; Art. XVII of the Regulations for putting the Law of Trade-marks in Operation.)

When an application is filed in within the prescribed period of priority as provided in Art. IV of the International League for the Protection of Industrial Property, application, specification and drawing certified by the Government of the country of the original application must be submitted (Art. XXV of the Regulations for putting the Law of Patent in Operation ; Art. VIII of the Regulations for putting the Law of Designs in Operation ; Arts. XVII. of the Regulations for putting the Law of Trade-marks in Operation).

During the period of provisional protection extended to an invention or design or trade-mark exhibited in an international exhibition, a similar protection shall be accorded to it in this

country during the period of the exhibition, provided the certificate establishing the fact of the provisional protection in the country where the exhibition is held is submitted on the occasion of sending in an application, (Art. XV. of the Law of Patent and Art. XXVI of the Regulations thereof; Art. XX II of the Law of Designs and Art. VIII of the Regulations thereof; Art. XX of the Law of Trade-marks and Art. XVII of the Regulations thereof.)

A foreign registered trade-mark duly registered in Japan shall be valid during the same period validity in the original country, put within the maximum limit of 20 years (Art. III. of the Law of Trade-marks.)

The exploitation of a patented invention must be made in Japan, but, in case this is not done or it is suspended for more than three years patentee refuses without justifiable reason to assign or to permit the use of the patent under reasonable conditions by a third party who has applied to him for such assignment or permission, the patent is liable to be revoked (Art. XXXVIII of the Law of Patents.)

VI. STATISTICS OF JAPANESE AND FOREIGN PATENTS, DESIGNS AND TRADE-MARKS.

The applications for patents filed by Japanese and foreigners and the number of letters-patent granted in Japan during the period indicated are given in the following table :—

Year.	No. of applications.	No. of licenses granted.
18th	425	99
19th	1,384	205
20th	906	109
21st	778	183
22nd	1,064	209
23rd	1,180	240
24th	1,288	367
25th	1,344	379
26th	1,337	318
27th	1,250	326

Year.	No. of applications.	No. of licenses granted.
28th	1,112	223
29th	1,213	169
30th	1,542	188
31st	1,789	293
32nd	1,915	597
33rd	1,980	586
34th	2,372	606
35th (up to June)	1,523	453
Total...	24,412	5,550

DESIGNS.

Years.	No. of applications.	No. of registrations.
22nd	176	23
23rd	497	82
24th	290	117
25th	262	48
26th	250	59
27th	336	64
28th	318	94
29th	300	96
30th	320	90
31st	265	52
32nd	342	139
33rd	397	130
34th	514	141
35th (up to June)	427	142
Total...	4,694	1,277

TRADE-MARKS.

Year.	No. of applications.	No. of registrations.
17th	883	—
18th	1,296	949
19th	624	508
20th	757	361
21st	568	436
22nd	1,029	664
23rd	819	583

Year.	No. of applications.	No. of registrations.
24th	896	554
25th	1,146	588
26th	1,243	648
27th	1,350	877
28th	1,373	923
29th	1,578	858
30th	3,228	2,335
31st	2,232	1,597
32nd	2,837	1,942
33rd	2,776	1,767
34th	2,608	1,621
35th (up to June)	1,680	989
Total...	28,925	18,200

Note :—In the figures for the years subsequent to the 32nd year 628 cases of continuation are included in applications and 599 in registrations.

The following figures show the number of applications and of licenses and registrations relating to foreigners from November 29th year to June 35th year, the countries being mentioned in alphabetical order :—

	Patents.		Designs.		Trade-marks.	
	No. of applications.	No. of licenses.	No. of applications.	No. of registrations.	No. of applications.	No. of registrations.
Austria-Hungary	16	5	—	—	10	9
Belgium	3	3	—	—	6	4
China	—	—	—	—	9	5
Denmark	14	5	—	—	3	3
France	56	25	—	—	225	179
Germany	157	54	4	1	1,172	913
Great Britain	232	103	10	9	1,454	1,117
Netherland...	6	2	—	—	7	4
Italy	7	4	—	—	2	1
Korea	3	2	—	—	—	—
Portugal	1	—	—	—	1	1
Russia	3	—	—	—	—	—
Spain	4	—	—	—	6	5
Sweden-Norway	12	4	—	—	3	3
Switzerland...	9	3	—	—	43	23
United States of America ...	580	283	1	—	368	284
Total	1,103	493	15	10	3,309	2,551

Note :—The figures for Great Britain cover those for its colonies.

PART IV.

FOREIGN TRADE.

CHAPTER I.

Tariff System.

THE tariff system of Japan was originally based on the treaties concluded with the foreign countries. The treaties concluded with Great Britain, United States of America, France, Russia and Netherlands in the 5th year of Ansei (1858) regulated by means of the commercial agreement appended to the treaties all matters relating to the entrance and departure of ships, the import and export of commodities, as well as import and export duties. In June of the 6th year of the same era the three ports of Yokohama, Nagasaki, and Hakodate were opened to commerce, and a customs house was established. Subsequently Kobe, Ōsaka and Niigata were similarly opened, the first in December of the 3rd year of Keio (1867), the second in July of the 1st year of Meiji, (1868) and the last in Novemvember of the same year. In May of the 2nd year of Keio, as the result of an agreement with the Ministers of Great Britain, France, United States of America and Netherlands the rate of import and export duties was fixed on the basis of 5 per cent. *ad valorem*.

The idea of drawing up a regular tariff system was mooted frequently and at last it took definite shape coming to the 27th year. Investigations were started in that year with that end in view, and the result was the enactment of the Tariff System promulgated in the 30th year. The system divided imports into three main classes, dutiable goods, non-dutiable

goods, and prohibited goods. The tariff for dutiable goods ranged from 5 to 40 per cent. *ad valorem*, divided into 16 grades. The schedule has as standard rate, so to say, 20 per cent. for ordinary refined goods, to decrease in one direction but to rise in another. (1) Natural produce, (2) scientific instruments and apparatus and raw materials, (3) machinery, (4) half-manufactured materials, (5) articles of ordinary consumption occupy the decreasing side of the schedule, while articles of luxury and liqors and tobacco occupy the other extreme. The tariff in question was put in force in January of the 32nd year.

Subsequently the tariff received more or less amendment either in the interests of the inland revenue or with the object of encouraging home industries. Thus in the 32nd year the tariff for manufactured tobacco was raised to 100 per cent. *ad valorem*, for alcohol to 250 per cent., for Chinese liqor, *Sakê*, and other distilled liqors or other kinds of liqors not mentioned in the list, to 80 to 100 per cent. In the same year raw materials required by the State monopolies and matchmaking were relieved from all duties as were also artificial and natural fertilizers. In the 34th year the rate on tobacco was advanced to 150 per cent. and that on alcohol to 42 *sen* per litre, and at the same time rate on some other imports was also advanced more or less. Further in the 35th year in compliance with a resolution of the House of Representatives, a law for putting a duty of 15 to 25 per cent. on raw eggs was promulgated.

With the putting in force of a regular tariff schedule it was necessary for Japanese tariff autonomy to have a regular tariff law, for no such law had existed in regular shape and there had only been a semblance of it in the shape of commercial agreements appended to the old treaties. With the object of filling this serious gap in the tariff legislature of the country, the draft of a tariff law was drawn up after consulating foreign laws on this subject. It was placed before the 13th session of the Imperial Diet, was passed by it in its original form, and at last it became law in the 32nd year.

The establishment of a regular tariff law may be said to

have ushered in a new era in the history of our tariff system. By that establishment many matters that formerly led to diplomatic interference have been transferred to the domain of ordinary administrative affairs. For instance special arrangement has been provided in making petition against the ruling of Customs Chiefs, while the places to be newly opened for commerce or the kinds of commodities to be exported from or imported into such places may be determined by Imperial Ordinances. Further provisions relating to the passage of goods through the interior or through the Customs Houses have already been created in virtue of the law in question. The creation of bonded warehouse system may also be mentioned in this connection.

The temporary storage of imports in Customs sheds provided for by Law No. 82 issue in the 33rd year; the exemption according to Law No. 85 issue in the same year, from duty of goods re-exported in manufactured form within one full year from the time of original import, and the establishment of goods agents in the 34th year may also be cited as some of the measures provided for facilitating foreign trade. The enactment in the 35th year of rebate arrangement on imported raw sugar in compliance with the proposal of the House of Representatives may also be mentioned in this connection.

CHAPTER II.

Development of Foreign Trade.

The foreign trade of Japan, and indeed even home trade, remained in an insignificant state prior to the discontinuation of the isolation policy and the opening of the country to foreign commerce that was inaugurated only a few decades ago. Whatever trade existed in those days was carried on with China, Korea, the Netherlands and Portugal, and even this was limited in scope, while the setting up of autonomic local governments by the feudal barons and the defective means of

communication and transportation necessarily obstructed the free development of trade. It was only after the conclusion of the treaties first with the United States of America, then with Russia, Great Britain, France, Netherlands, etc., as already mentioned, and after the establishment of regular trading ports at Nagasaki, Yokohama, Hakodate, and elsewhere and especially after the abolition of the feudal system in the 1st year and the rehabilitation of the Imperial régime, that a new era began with our foreign trade. The introduction of various factors of Western civilization has powerfully accelerated its development.

TOTAL VALUE OF EXPORTS AND IMPORTS OF PRINCIPAL COMMODITIES.

(figures marked with an asterisk denote excess of imports.)

Year.	Exports.	Imports.	Total.	Excess of exports and imports.
	yen.	*yen.*	*yen.*	*yen.*
1st	15,553,437	10,693 072	26,246,545	4,860,401
2nd	12,908,978	20,783,633	33,692,611	* 7,874,655
3rd	14,543,013	33,741,637	48,284,650	* 19,198,624
4th	17,968,609	21,916,728	39,885,336	* 3,948,119
5th	17,026,647	26,174,815	43,201,462	* 9,148,168
6th	21,635,441	28,107,390	49,742,831	* 6,471,949
7th	19,317,306	23,461,814	42,779,120	* 4,144,508
8th	18,611,111	29,975,628	48,586,738	* 11,364,517
9th	27,711,528	23 964,679	51,676,206	3,746,849
10th	23,348,522	27,420,903	50,769,425	* 4,072,381
11th	26,988,140	32,874,834	58,862,974	* 6,886,694
12th	28,175,770	32,953,002	61,128,773	* 4,777,232
13th	28,395,387	36,626,601	65,021,988	* 8,231,214
14th	31,058,888	31,191,246	62,250,134	* 132,358
15th	37,721,751	29,446,504	67,168,345	8,275,157
16th	36,268,020	28,444,342	64,712,861	7,823,178
17th	33,871,466	29,672,647	63,544,113	4,198,819
18th	37,146,691	29,356 968	66,503,659	7,789,724
19th	48,876,313	32,168,432	81,044,745	16,707,881
20th	52,407,681	44,304,252	96,711,933	8,103,429
21st	65,705,510	65,455,234	131,160,744	250,276
22nd	70,060,706	66,103,767	136,164,472	3,956,939
23rd	56,603,509	81,728,581	138,332,087	25,125,074
24th	79,527,272	62,927,268	142,454,541	16,600,004
25th	91,102,754	71,326,080	162,428,833	19,776,674

Year.	Exports.	Imports.	Total.	Excess of exports and imports.
	yen	*yen.*	*ysn.*	*yen.*
26th	89,712,865	88,257,172	177,970,036	1,455,693
27th	113,246,086	117,481,955	230,728,042	* 4,235,869
28th	136,112,178	129,260,578	265,372,756	6,851,600
29th	117,842,761	171,674,474	289,517,235	* 53,831,713
30th	163,135,077	219,300,772	382,435,849	* 56,165,665
31st	165,753,753	277,502,157	443,255 909	*111,748,404
32nd	214,929,894	220,401,926	435,331 820	* 5,472,032
33rd	204 429,994	287 261,846	491,691,840	* 82,831,852
34th	252,349,543	255,816 645	508,166,188	* 3,467,102

The foregoing table shows that compared with the corresponding figures in the first year the total value of exports and imports in the 34th year, 580,160,000 *yen* approximately, advanced by 19 fold; and by 12 fold, compared to those of the 4th year, by 8 fold compared to those of the 14th year, and three and a half fold to those of the 24th year. The import and export of specie and bullion during the same period is shown below :—

TOTAL VALUE OF EXPORT AND IMPORT OF SPECIE AND BULLION.

(figures marked with an asterisk denote excess of exports).

Year.	Exports.	Imports.	Excess of export and imports.
	yen.	*yen.*	*yen.*
1st	—	—	—
2nd	—	—	—
3rd	—	—	—
4th	—	—	—
5th	4,480,896	3,691,510	* 789,389
6th	5,122,927	3,080,542	* 2,042,386
7th	13,995,202	1,071,731	*12,923,471
8th	14,663,971	298,322	*14,365,647
9th	10,675,701	8,267,241	* 2,408,460
10th	9,441,271	2,173,499	* 7,267,772
11th	8,328,653	2,189,101	* 6,139,552
12th	12,778,864	3,134,804	* 9,644,060
13th	13,222,993	3,638,230	* 9,584,763

Year.	Exports.	Imports.	Excess of exports and imports.
	yen.	*yen.*	*yen.*
14th	7,490,547	1.856.147	* 5.634.400
15th	4.430.198	6,160,724	1.730.526
16th	3,156,565	5,451,501	2,294,936
17th	5.005,072	5,611,759	606.687
18th	4.256.446	7,546,841	3,290,395
19th	9,626,448	9,171,874	* 494,574
20th	11.035.488	8,871,266	* 2.164.222
21st	7,833,444	8,732,492	899,048
22nd	5,188,529	14.173.246	8,984,717
23rd	13.778.531	1.200.607	*12,577,924
24th	1.452.964	13,888,526	12.435.562
25th	9.729.753	22.883.757	13,154,004
26th	12.289.188	11.186.487	* 1.102.701
27th	34,379,111	26,783,653	* 7.595.458
28th	27,301,699	5.874.164	*21.427.535
29th	11,598,884	39,142,208	27.543.324
30th	19,219,163	81,466,713	62.247.550
31st	86,987,481	42,563,781	*44,423,700
32nd	11.178.247	20.163.501	8,985,254
33rd	56,707,063	11,517,835	*45,189,228
34th	14,049,099	10,960,750	* 3,088,349

The foregoing table demonstrates the fact that excess of exports was largest in the 33rd year since the 1st year of Meiji, it having amounted to no less than 45,160,500 *yen* in round numbers. On the other hand the excess of import reached the record in the 30th year with 62,240,000 *yen* approximately. Under ordinary circumstances the balance of the export and import of specie and bullion is of course in inverse proportion to that of ordinary exports and imports. The enormous excess of imports in commodities in the 33rd year was naturally reflected in the phenomenal excess of the export in specie; however the excess of import specie in the 30th year when the excess of the import of commodities reached as much as 56,160,000 *yen* approximately was due to a special cause, that is to say the calling in of the proceeds of public bonds sold abroad also of the Chinese Indemnity.

CHAPTER III.

Distribution of Trade.

THE commercial importance of the Asiatic Continent to our foreign trade is a fact that does not need to be insisted on, nontheless the progress of our trade with the continent is a striking phenomenon, refounding much to the credit of our countrymen. In the 14th year Europe stood at the head of the list in the volume and value of its exports followed by America and Asia. In imports Asia headed the list followed by Europe and America. Coming to the 34th year the relative positions of these great division of the globe were reversed, and in the exports Asia came first followed by America and Europe. In imports also Asia occupied the same position, after which came Europe and America.

To review the relative progress of the share of the three continents in our trade, between the 14th and the 34th year Asia advanced by over 17 fold in the value of her exports, Europe by 460 per cent., America 680 per cent., Australia and others by over 325 per cent. Even compared with the 24th year, the exports to Asia increased by over five fold, and those to other continents by about two and a half fold. In imports the rate of advance between the 14th and 34th year was over 14 fold for Asia, over 450 per cent. for Europe, over 2360 per cent. for America, and over 5680 per cent for Australia and others. Comparison made with the figures in the 24th year, the rate of advance was over 440 per cent. for Asia, over 300 for Europe, over 600 for America, over 360 for Australia and others. Details are given in the following tables:—

TOTAL VALUE OF EXPORTS TO VARIOUS COUNTRIES.

(unit of *yen*).

Year.	Australia.	Belgium.	British America.	British India.	China.	Korea.
1st	—	—	—	—	—	—
2nd	—	—	—	—	—	—
3rd...	—	—	—	—	—	—

Year.	Australia.	Belgium.	British America.	British India.	China.	Korea.
4th...	—	—	—	—	—	—
5th...	—	—	—	—	—	—
6th...	—	—	—	—	4 786,006	—
7th...	—	—	—	—	3,655,011	—
8th...	—	—	—	—	4,186,550	—
9th...	—	—	—	—	4,764,054	—
10th...	26,359	—	—	332,748	5,015,928	—
11th...	254,867	175	—	2,455,538	6,551,868	—
12th...	79,807	260	—	216,286	5,982 327	—
13th...	179,645	300	—	123 352	6,320,573	—
14th...	148,933	3,807	—	126,777	6,302,013	—
15th...	160,333	793	—	362,008	5 711,641	—
16th...	438,608	6,950	—	412,600	5,928,978	—
17th...	246,020	3,362	—	536,163	6,551,271	337,819
18th...	285,018	68,270	—	493,817	8,242,836	461,819
19th...	469,915	8,438	—	649,143	9,594 927	829,366
20th...	535,082	23,816	714,175	453,472	10,970,044	551,908
21st	638,395	30,083	857,324	457,078	11,426,714	707,175
22nd	486,397	37,709	826,962	1,341,153	5,442,507	1,092,996
23rd...	795,044	64,021	1,022,815	950,786	5,227,495	1,250,713
24th...	757,101	69,376	1,342,667	987,995	5,825,851	1,466,040
25th...	731,659	50,125	1,088,407	1,422,289	6,358,860	1 410,699
26th...	890,637	226,284	1,720 559	2,471,079	7,714 720	1,301,243
27th...	1,098,066	19,480	2,211,687	3,688,159	8,813,987	2,365,112
28th...	1,281,104	131,944	1,986,169	4,359,236	9,135,106	3,831,477
29th...	1 458,253	111,467	1,594,045	4,537,653	13,823,844	3,367,693
30th...	1,875,170	109,312	2,054,620	5,563,333	21,325,065	5,196,573
31st	1,995,680	101,165	2,365 620	6,134,450	29,193,175	5,844,332
32nd	2,169,921	331,415	2,358,099	6,062,049	40,257,034	6,995,931
33rd...	2,530,525	296,512	2,950,663	8,704,318	31,871,576	9,953,272
34th...	2,533,357	519,327	3,276,114	9,657,595	42,925,579	11,372,551

Year.	France.	French India.	Germany.	Great Britain.	Hongkong.
1st	—	—	—	—	—
2nd	—	—	—	—	—
3rd...	—	—	—	—	—
4th...	—	—	—	—	—
5th...	—	—	—	—	—
6th...	3,625,847	—	169,755	5,169,153	—
7th...	2,759,496	—	62,719	3,232,665	—
8th...	3,531,427	—	19,845	2,513,007	—
9th...	7,578,017	—	23,743	7,045,739	—
10th...	4,868,943	—	56,974	6,319,522	—

Year.	France.	French India.	Germany.	Great Britain.	Hongkong.
11th...	5,427,797	—	68,001	3,903,401	—
12th...	5,807,976	—	49,014	4,082,204	—
13th...	5,425,088	—	34,944	2,596,667	—
14th...	8,337,167	—	181,597	3,552,118	—
15th...	10,317,345	—	461,501	4,997,356	—
16th...	9,718,599	—	250,866	4,862,188	—
17th...	6,801,158	—	516,942	3,830,684	—
18th...	6,739,925	—	470,271	2,453,168	—
19th...	9,632,903	—	864,456	4,195,356	—
20th...	9,528,397	—	921,723	3,478,729	—
21st	13,636,251	—	1,617,565	8,710,013	—
22nd	14,258,726	—	1,638,383	7,664,599	7,337,896
23rd...	8,354,394	—	846,921	5,638,980	9,366,406
24th...	15,120,075	—	1,456,596	5,633,137	12,578,695
25td...	18,093,694	—	940,783	3,921,753	13,288,540
26th...	19,531,975	—	1,380,040	4,995,974	15,688,875
27th...	19,498,776	24,523	1,517,549	5,950,198	16,199,481
28th...	22,906,386	17,555	3,340,013	7,883,091	18,362,803
29th...	19,027,389	30,460	2,972,137	9,012,398	19,965,900
30th...	26,213,654	35,513	2,207,018	8,481,196	25,390,294
31st	20,496,407	111,421	2,469,242	7,783,643	31,473,896
32nd	29,247,837	161,048	3,796,927	11,270,770	34,291,308
33rd...	19,150,423	114,407	3,555,614	11,262,997	39,177,455
34th	27,275,671	148,470	5,251,071	11,482,504	41,786,641

Year.	Italy.	Philippines.	Russian Asia.	United States of America.	Others.
1st...	—	—	—	—	—
2nd	—	—	—	—	—
3rd...	—	—	—	—	—
4th...	—	—	—	—	—
5th...	—	—	—	—	—
6th...	2,265,481	—	—	4,226,162	1,393,038
7th...	647,658	—	—	7,464,844	1,494,914
8th...	530,770	—	—	6,890,132	939,370
9th...	1,705,549	—	—	5,797,825	796,601
10th...	787,204	—	22,322	5,232,322	686,200
11th...	682,927	—	90,584	5,845,068	707,914
12th...	540,896	—	56,395	10,879,053	481,552
13th...	817,278	—	106,678	12,041,151	742,711
14th...	403,315	—	84,951	11,087,556	830,654
15th...	352,218	—	109,471	14,280,199	986,886
16th...	141,117	—	185,608	13,293,759	1,028,747
17th...	68,039	—	164,946	13,130,924	1,684,138

Year.	Italy.	Philippines.	Russian Asia.	United States of America.	Others.
18th...	120,594	—	316,550	15,639,005	1,855,418
19th...	181,201	—	232,606	19,992,429	2,225,590
20th...	554,976	5,977	202,087	21,529,207	2,938,028
21st	705,989	69,705	288,982	22,618,483	3,941,753
22nd	736,101	23,682	430,814	25,282,874	3,423,961
23rd...	214,291	197,249	246,311	19,821,438	2,966,642
24th...	745,780	117,460	315,837	29,795,755	3,305,907
25th...	1,254,331	96,531	585,695	38,674,971	3,184,417
26th...	1,631,908	120,417	621,838	27,739,458	3,678,158
27th...	2,900,390	220,587	992,755	43 323,557	4,421,779
28th...	3,550,736	194,832	1,247,523	54,028,950	4,755,250
29th...	2,669,106	187,786	1,780,928	31,532,341	5,771 361
30th...	2,981,889	186,383	1,861,727	52,436,404	7,216,926
31st	2,485,362	115,433	2,181,972	47,311,155	5,690,800
32nd	3,581,709	286,772	2,556,003	63,919,270	7,643 801
33rd...	7,129,311	1,257,126	3,541,833	52,566,395	10,367,567
34th...	12,569,485	2,580,682	2,290,447	72,309,359	6,370,685

TOTAL VALUE OF IMPORTS FROM VARIOUS COUNTRIES.

(units of *yen*)

Year.	Australia.	Belgium.	Canada and other British America.	British India.	China.	Korea.
1st	—	—	—	—	—	—
2nd	—	—	—	—	—	—
3rd...	—	—	—	—	—	—
4th...	—	—	—	—	—	—
5th...	—	—	—	—	—	—
6th...	—	—	—	—	9,881,533	—
7th...	—	—	—	—	8,665,716	—
8th...	—	—	—	—	8,200,382	—
9th...	—	—	—	—	7,472,055	—
10th...	—	63,474	—	190,528	5,674,540	—
11th...	23,238	190,363	—	819,931	4,784,193	—
12th...	78,442	159,789	—	1,591,039	5,865,350	—
13th...	38,080	363,029	—	1,750,977	5,846,227	—
14th...	71,327	389,588	—	2,212,964	5,503,444	—
15th...	74,302	128,932	—	2,306,223	6,553,201	—
16th...	91,160	268,913	—	2,455,619	5,768,226	—
17th...	26,424	202,653	—	2,350,909	7,019,996	408,398
18th...	72,104	317,682	—	3,398,698	6,342,198	470,609
19th...	80,466	507,909	—	3,561,319	7,123,851	563,448
20th...	32,266	322,196	26,174	5,291,614	7,985,821	1,010,374

Year.	Australia.	Belgium.	Canada and other British America.	British India.	China.	Korea.
21st	218,713	596,160	25,109	7,689,092	10,360,135	1,041,764
22nd	267,085	887,137	29,970	7,333,859	9,199,698	1,273,372
23rd...	334,239	1,032,351	25,659	8,910,891	8,849,685	4,363,540
24th...	228,844	688,958	20,835	5,614,078	8,798,428	4,032,922
25th...	272,787	951,537	30,754	7,662,004	12,509,410	3,046,340
26th...	319,034	935,001	16,629	8,679,029	17,095,975	1,999,439
27th	534,763	1,201,121	45,395	10,511,507	17,511,507	2,183,313
28th...	1,031,725	2,066,245	13,718	12,001.811	22,985,144	2,925,400
29th...	835,046	3,106,094	51,525	22,517,425	21,344,521	5,118,925
30th...	897,050	3,173,218	129,129	29,775,930	29,265,845	8,864,360
31st	1,403,436	4,316,703	156,889	40,764,245	30,523,861	9,796,032
32nd	1,708,670	5,415,810	182,018	43,883,886	28,687,731	4,976,167
33rd...	2,455,939	7,949,254	316,669	23,516,351	29,960,740	8,805,618
34th...	1,777,599	5,810,897	181 785	42,779,905	27,256,986	10,052,438

Year.	France.	French India.	Germany.	Great Britain.	Hongkong.
1st...	—	—	—	—	--
2nd	—	—	—	—	—
3rd...	—	—	—	—	—
4th...	—	—	—	—	--
5th...	—	—	—	—	—
6th...	2,489,270	—	2,040,263	11,907,182	—
7th...	1,745,242	—	728,745	10,520,489	—
8th...	3,922,591	—	813,506	14,689,728	—
9th...	3,171,956	—	384,676	11,117,277	—
10th...	3,031,037	—	700,981	15,679,111	—
11th...	3,348,811	—	1,280,645	19,273,057	—
12th...	3,499,277	—	1,174,182	16,868,965	—
13th...	3,759,542	—	1,745,067	19,626,430	—
14th...	3,195,655	--	861,920	16,402,382	--
15th...	1,464,460	—	1,196,268	13,971,859	—
16th...	1,871,042	—	1,421,612	12,775,124	—
17th...	1,587,541	—	2,315,869	12,758,807	—
18th...	1,333,880	—	1,671,990	12,456,611	—
19th...	1,330,914	—	2,313,659	12,703,249	—
20th...	2,313,346	—	4,010,916	18,970,544	—
21st	4,125,190	—	5,260,897	28,693,567	—
22nd	3,334,168	—	4,887,900	26,067,935	4,103,703
23rd...	3,869,332	—	6,856,956	26,619,102	5,495,912
24th...	2,834,025	—	5,127,476	19,996,051	5,089,606
25th...	3,620,500	—	6,375,048	20,789,332	6,985,723

Year.	France.	French India.	Germany.	Great Britain.	Hongkong.
26th...	3,305,277	—	7,318,134	27,929,628	8,268,071
27th...	4,348,048	6,204,147	7,909,542	42,189,874	8,999,718
28th...	5,180,135	3,382,673	12,233,159	45,172,111	8,078,190
29th...	7,682,347	1,673,388	17,183,953	59,251,780	9,133,778
30th...	5,147,592	9,525,553	18,143,280	65,406,266	12,027,197
31st	6,979,983	26,668,444	25,610,962	92,707,573	15,904,467
32nd	5,768,180	4,489,326	17,613,191	44,836,994	7,338,455
33rd...	8,095,819	3,632,643	29,199,696	71,638,220	10,659,855
34th...	3,752,828	4,082,897	28,320,102	50,575,789	11,171,788

Year.	Italy.	Philippines.	Russian Asia.	United States of America.	Others.
1st	—	—	—	—	—
2nd	—	—	—	—	—
3rd...	—	—	—	—	—
4th...	—	—	—	—	—
5th...	—	—	—	—	—
6th...	—	—	—	1,017,761	771,381
7th...	—	—	—	1,047,250	754,373
8th...	29,519	—	—	1,920,346	399,556
9th...	28,832	—	—	1,124,882	665,601
10th...	63,394	—	—	1,736,781	281,057
11th...	118,133	—	9,288	2,727,585	299,590
12th...	112,999	—	10,280	3,212,273	380,407
13th...	159,010	—	8,593	2,669,334	660,312
14th...	177,109	—	74,844	1,816,200	485,813
15th...	112,290	—	18,321	3,133,666	487,073
16th...	155,964	—	22,605	3,233,032	381,545
17th...	91,177	—	12,488	2,489,969	408,416
18th...	95,998	—	13,451	2,751,321	432,426
19th...	119,558	—	13,146	3,358,987	491,967
20th...	163,774	130,995	19,146	3,283,096	743,990
21st	200,133	213,169	332,525	5,648,743	1,050,047
22nd	144,668	228,486	825,254	6,143,171	1,378,401
23rd...	128,744	255,486	769,948	6,874,532	7,342,203
24th...	111,887	228,481	884,621	6,840,048	2,431,008
25th...	67,680	475,123	835,395	5,988,054	1,716,272
26th...	86,578	567,133	1,871,114	6,090,408	3,775,721
27th...	170,340	1,698,818	1,165,306	10,982,558	1,777,057
28th...	148,465	1,220,745	1,371,612	9,276,360	2,173,085
29th...	182,924	1,804,914	1,318,893	16,373,420	4,095,541
30th...	213,267	2,675,304	1,859,654	27,030,538	5,166,593
31st	385,819	3,294,183	1,694,170	40,001,098	12,294,192
32nd	236,988	2,383,874	4,534,120	38,215,894	10,130,622
33rd...	450,106	2,284,294	5,716,705	62,761,196	19,818,741
34th...	154,382	2,981,031	4,515,166	42,769,430	19,663,622

CHAPTER IV.

The Principal Exports.

THE principal exports are raw silk, *habutaye*, cotton yarns, matches, fancy matting, tea, camphor, marine products, copper, coal, etc. Of these raw silk and *habutaye* stand out conspicuous in volume and value, and have in the United States of America and France their best customers. In the 25th year the total value of their exports amounted to 40,300,000 *yen* approximately, to be advanced to about 98,570,000 *yen* in the 34th year. Cotton yarns go mostly to China, Hongkong and Korea, matches and and coal to China, Hongkong and British India; fancy matting to the United States of America, etc; marine products to China and Hongkong; copper to Hongkong, England, Germany, etc. Details from the 1st year of Meiji are given below.

TOTAL VALUE OF PRINCIPAL EXPORTS.

(unit of *yen*).

COMESTIBLES AND PROVISIONS.

Year.	Tea.	Rice.	Dried Cuttle-fish.	Others.
1st	3,581,769	406	125,854	557,732
2nd	2,102,420	75	173,586	1,040,576
3rd	4,511,616	119	195,602	1,049,993
4th	4,671,761	487	204,454	1,117,861
5th	4,226,108	9	278,192	986,873
6th	4,659,392	538,990	282,030	1,337,335
7th	7,253,405	332,172	383,737	1,227,702
8th	6,862,855	18,372	242,346	1,248,932
9th	5,453,981	810,390	323,079	1,681,127
10th	4,375,275	2,269,114	414,956	1,640,285
11th	4,283,695	4,644,280	379,155	1,681,355
12th	7,445,509	416,879	553,917	2,127,226
13th	7,497,881	210,862	648,388	2,097,900
14th	7,021,593	261,737	477,886	3,230,081

Year.	Tea.	Rice.	Dried Cuttle-fish.	Others.
15th	7,029,718	1,652,115	648,682	2,002,539
16th	6,106,496	1,000,950	802,986	2,444,692
17th	5,819,695	2,170,385	789,103	2,450,707
18th	6,854,121	767,455	903,742	2,843,647
19th	7,723,321	3,301,433	1,007,621	3,042,162
20th	7,603,341	2,255,196	1,051,721	2,787,739
21st	6,124,816	7,421,333	1,071,963	3,086,509
22nd	6,156,729	7,434,941	1,088,605	3,677,612
23rd	6,326,681	1,323,511	1,228,712	3,435,208
24th	7,033,050	6,213,495	1,003,703	3,708,335
25th	7,525,316	4,162,732	980,307	4,011,317
26th	7,702,088	5,002,768	1,426,781	4,157,341
27th	7,930,287	5,595,398	1,162,453	4,055,346
28th	8,879,242	7,209,756	996,030	4,517,985
29th	6,372,329	7,957,295	1,151,143	4,794,761
30th	7,860,460	6,141,218	1,413,647	5,255,693
31st	8,215,665	5,920,185	1,268,257	5,362,474
32nd	8,498,783	10,282,012	1,362,068	9,709,730
33rd	9,035,819	3,576,569	1,158,794	8,167,366
34th	8,854,327	6,908,913	1,842,249	10,520,363

CLOTHING AND RAW MATERIALS.

Year.	Raw silk.	*Noshi* and waste silk.	*Habutaye* and *Kaiki*.
1st	6,253,473	81,577	—
2nd	5,720,182	137,011	—
3rd	4,278,752	127,048	—
4th	8,004,144	190,690	—
5th	5,205,237	293,938	—
6th	7,208,421	200,744	—
7th	5,302,039	192,325	—
8th	5,424,916	251,131	—
9th	13,197,921	466,109	—
10th	9,626,956	262,098	—
11th	7,889,446	599,114	—
12th	9,734,534	1,225,613	—

Year.	Raw silk.	*Noshi* and waste silk.	*Habutaye* and *Kaiki*.
13th	8,606,867	1,290,516	—
14th	10,647,310	1,789,682	—
15th	16,232,150	2,214,644	—
16th	16,183,550	1,968,934	—
17th	11,007,172	1,675,679	—
18th	13,033,872	1,135,183	—
19th	17,321,362	2,130,887	—
20th	19,280,003	2,072,328	—
21st	25,916,861	2,378,994	—
22nd	26,616,542	2,256,576	—
23rd	13,859,339	2,571,854	818,537
24th	29,356,359	2,443,323	1,445,639
25th	36,269,744	3,211,597	4,030,476
26th	28,167,411	2,792,764	3,553,604
27th	39,353,156	3,208,593	7,254,478
28th	47,866,257	2,862,720	8,354,490
29th	28,830,602	2,764,065	7,052,217
30th	55,630,460	3,019,973	9,716,716
31st	42,047,411	2,655,931	12,629,057
32nd	62,627,721	4,074,086	17,250,966
33rd	44,657,029	4,161,318	18,314,694
34th	74,667,331	4,468,769	25,228,136

Year.	Silk handkerchief.	Cotton yarns.	Cotton fabrics.	Others.
1st	—	—	6,450	4,030,955
2nd	—	—	5,362	2,782,953
3rd	—	—	3,786	2,840,942
4th	—	—	1,859	1,725,607
5th	—	—	1,659	2,715,879
6th	—	—	8,795	3,503,165
7th	—	—	6,542	1,125,366
8th	—	—	9,903	822,855
9th	—	—	10,629	2,564,357
10th	—	—	18,240	794,723
11th	—	—	18,819	965,679

Year.	Silk handkerchief.	Cotton yarns.	Cotton fabrics.	Others.
12th	—	—	27,349	1,265,848
13th	—	—	33,044	1,263,221
14th	—	—	42,182	1,139,016
15th	—	—	38,148	946,241
16th	—	—	62,205	592,827
17th	—	—	104,943	848,889
18th	—	—	177,999	638,333
19th	—	—	231,499	1,758,062
20th	1,146,281	—	170,640	1,056,258
21st	1,233,927	—	153,594	1,158,125
22nd	2,104,459	—	147,035	1,392,545
23rd	2,516,946	2,364	173,842	1,069,027
24th	2,811,820	7,873	243,359	1,247,825
25th	3,494,417	7,720	544,022	1,690,456
26th	3,899,646	59,176	1,109,543	2,598,279
27th	3,628,129	955,530	1,861,203	4,367,150
28th	5,339,955	1,034,479	1,329,512	6,318,653
29th	4,617,720	4,029,425	1,397,493	3,989,448
30th	3,390,146	13,490,197	2,512,376	3,196,069
1st	3,555,115	20,116,586	2,597,979	3,725,359
32nd	3,461,572	28,521,438	3,910,484	4,175,877
33rd	4,318,553	20,589,263	5,723,669	5,152,086
34th	3,951,192	21,465,573	5,461,962	3,032,107

VALUE OF THE PRINCIPAL EXPORTS.

(units of *yen*)

	Medical and Dye-stuff.		Metals and metallic ware.		Miscellaneous.	
	Camphor.	Others.	Copper.	Others.	Coal.	Matches.
1st	77,098	170,710	28,227	41,653	84,280	—
2nd	115,339	150,063	120,680	1,831	182,581	—
3rd	235,703	331,645	207,281	23,132	298,344	—
4th	129,864	172,559	775,302	21,680	324,981	—
5th	88,722	180,010	1,310,645	304,118	335,916	—
6th	68,437	234,976	614,451	373,106	628,090	—
7th	155,550	322,444	546,676	136,625	555,341	—
8th	138,523	246,838	440,328	41,395	1,010,589	—
9th	174,318	304,740	282,113	31,680	776,242	—

	Medical and Dye-stuff.		Metals and metallic ware.		Miscellaneous.	
	Camphor.	Others.	Copper.	Others.	Coal.	Matches.
10th	238,166	354,756	614,549	52,092	735,475	—
11th	323,665	402,159	846,044	227,613	883,517	20,400
12th	455,910	431,942	819,875	418,620	777,712	83,589
13th	598,224	475 211	461,277	650,128	1,086,141	369.672
14th	706,138	460,449	588,596	786,998	1,104.438	249,759
15th	869,128	301,839	829,458	501 890	1.177,333	37,240
16th	707,993	359,157	726,388	447,249	1,357.936	3,165
17th	549.503	400,626	1,395.904	348.881	1,809,932	2,792
18th	558,646	530,868	1,837,171	479,752	1,975,966	60,566
19th	928,028	430,639	2,187,093	475,948	2,208 949	378,022
20th	1 130.596	549 050	2,050,028	1,022,086	2,337,805	941.576
21st	1,017.887	515 466	3.520,520	740 374	3 186.037	740,934
22nd	1,391.372	788,097	2,880,101	856,043	4,346,639	1.137.952
23rd	1,931,993	900.385	5.356,541	929.871	4,796,089	1.489 030
24th	1,629,105	877,011	4,880,576	933 394	4.749,735	1,843,637
25th	1,274,753	912,754	4,879,444	823,651	4.571.984	2,202,041
26th	1,308,611	1,037,867	4,574,709	949.137	4,817.912	3.537,974
27th	1,023,956	1,437,676	4,902,622	1,127,750	6,578,461	3,795 635
28th	1,526,832	1,551,525	5,097,690	1.440 530	7,604,788	4.672 812
29th	1,119,196	1,845,691	5,478.715	1,255,702	8 870.256	4,986,260
30th	1,318,292	1.595,155	5.832.306	1.350.798	11,545.801	5 641.993
31st	1,174,574	1,690,701	7.342,556	1,498,091	15 168,799	6 273 949
32nd	1,754,496	2,209,282	11,482,739	1,551,000	15 164,867	5,890,666
33rd	3,070,701	2,300,527	12,863,927	1,396,104	20,032,103	5,760,869
34th	3.904,974	2,671,394	13 904,710	1,916,563	17.542 273	7,392 869

	Miscellaneous.				
	Mats.	Porcelain and earthenware.	Straw-plaits.	Others.	Re-exported goods.
1st	—	23,015	—	490 274	—
2nd	—	4.704	—	371.615	—
3rd	—	26,236	—	412.814	—
4th	—	22,354	—	605,006	—
5th	—	45.531	—	1,053.810	—
6th	—	116.481	—	1,370.902	490.126
7th	384	108.675	—	1,143.338	534.985
8th	334	113.224	—	1,095,465	643.105
9th	636	73,792	—	1,074.181	486.233
10th	933	120,853	—	1,472 755	357.296
11th	317	169,100	—	1,383.301	270,481
12th	274	307,039	—	1,757,048	327,426

	Miscellaneous.				
	Mats.	Porcelain and earthenware	Straw-plaits.	Others.	Re-exported goods.
13th	215	474,579	—	2,186,432	444,829
14th	927	711,351	—	2,410,065	330,680
15th	741	578,641	—	2,387,831	273,413
16th	350	543,768	—	2,500,966	458,408
17th	1,325	525,933	—	3,164,176	805,803
18th	935	695,269	—	3,653,175	999,991
19th	2,709	1,002,384	—	3,873,679	872,515
20th	36,296	1,311,901	350,450	4,394,112	860,274
21st	148,224	1,295,316	268,557	4,912,246	813,827
22nd	166,883	1,449 888	146,847	5,268,028	753,812
23rd	347,541	1,245,957	87,196	5,381,223	811,659
24th	656,123	1,287,027	193,777	6,172,999	789,219
25th	1,176,680	1,480,411	155,162	6,999,751	698,019
26th	1,723,383	1,577,191	378,349	8,575,481	762,850
27th	1,965,493	1,484,854	743,399	9,739,606	1,074,911
28th	3 461,370	1,955,060	1,387,643	11,583 701	1,121,148
29th	3,056 759	1,974,854	2,234,354	12,788,294	1,267,182
30th	3,232,738	1,819,061	3 181,915	14,284,297	1,675,766
31st	3,938,450	1,990,781	2,404,003	13,327,290	2,850 541
32nd	3,717,489	2,181,336	2,770,178	15,355,346	1,977,758
33rd	3 310,042	2,471,904	4,025,159	20,092,497	4,251,001
34th	5,431,514	2,491,668	2,989,836	16,305,242	2,934,035

CHAPTER V.

The Principal Imports.

Of the imports into Japan machineries, iron-ware, petroleum, sugar, raw cotton, cotton fabrics, woollen goods, etc. are the principal items. Of the machines locomotives and mules surpass all the rest, the former coming from England and the United States and the latter from England. Iron-ware come from the United States, and Russian Asia; sugar from China, Hongkong, and Germany; ginned cotton from the United States, Hongkong and British India; cotton goods from England and Germany; woollen goods from England, Germany, Belgium, and France. The advance in the import of all those articles is due to the development of our industry and to the rise of the scale of living of our people. Among those goods, there are many which Japan has begun to manufacture or is about to manufacture with the exception of woollen goods, so that though the import of raw materials or others ministering to one or another manufacturing industry in this country is destined to advance, that of manufactured goods will decline. Details regarding the value of principal imports are given in the following table :—

TOTAL VALUE OF THE PRINCIPAL IMPORTS.

(unit of *yen*),

ARMS, CLOCKS AND OTHER MACHINES.

Year.	Locomotives and parts of.	Clocks, watches and parts of.	Others.
1st	—	3,708	1,302,136
2nd	—	4,614	634,735
3rd	—	2,541	195,688
4th	—	29,487	139,398
5th	—	38,710	319,916
6th	—	91,967	580,371
7th	—	155,293	744,348
8th	—	148,101	2,473,667
9th	—	144,855	569,909
10th	—	197,277	1,208,584
11th	—	273,777	880,001

Year.	Locomotives and parts of.	Clocks, watches and parts of.	Others.
12th	—	208,122	917,717
13th	—	301,316	1 401,432
14th	—	186,421	832,199
15th	—	172,821	765,347
16th	21,842	140,481	582,492
17th	60,222	169,981	1,089,285
18th	93,292	175,526	1,213,429
19th	90,090	169,082	1,203,449
20th	95,523	377,354	1,933,673
21st	301,197	715,274	4,455,185
22nd	284,144	665,431	4,464,200
23rd	659,604	752,597	5,211,179
24th	595 474	449,107	2,941 667
25th	209,418	504,504	2,976,304
26th	356,534	543,438	4,270,594
27th	1,580,273	433 216	5,733,048
28th	1,163,695	971,939	8,038,740
29th	1,620,768	1,996,672	9,715 850
30th	4,235,617	1,990,044	15,754 998
31st	4,282,502	3,066,331	13,194,788
32nd	1,968,374	399,509	6,938,113
33rd	1,089,209	1,953,914	11,023,643
34th	1,749,408	1,212,244	13,642,631

COMESTIBLES.

Year.	Flour.	Beans and peas.	Rice.	Sugar.	Others.
1st	23,372	152,464	435,956	918,779	231,517
2nd	127,736	911,490	4,431,886	1,714 102	455,385
3rd	121,817	1,130,275	18,598,114	3,117,979	504,618
4th	79,795	222,200	1,260,179	3,105,548	476,897
5th	60,659	50,641	—	1,765,392	563,590
6th	44,674	38,606	29,785	2,273,348	668,339
7th	42,880	13,806	24,366	2,672,210	544,263
8th	48,615	127,151	22,226	3,504,190	523,060
9th	50,553	101,012	590	2,847,255	514,841
10th	48,915	14,597	300	2,871,383	488,767
11th	45 001	19,502	66	2,980,289	544,980
12th	44,787	495,750	248,271	3,448,011	538,554
13th	56,665	286,237	4,315	3,630,617	653,853
14th	53,216	73,226	134,838	3,816,984	650,470
15th	49,291	200,652	20,134	4,529,639	623,812
16th	55,628	68,409	69	4,476,349	557,128

Year.	Flour.	Beans and peas.	Rice.	Sugar.	Others.
17th	54,085	224,450	11,529	5,475 095	574,861
18th	102,079	92,628	674,330	4,741,179	678,028
19th	99,157	77,906	18,757	5,640,333	856,834
20th	96,194	425,205	129,315	5,779,226	1,292,485
21st	135,830	608,666	21,628	6,955,286	1,381,567
22nd...	193,029	817,506	136,756	6,292,493	1,110,521
23rd	226,157	1,856,279	12,302,884	8,489,008	1,236,547
24th	340,540	2,010,879	3,907,991	7,811,307	1,164,168
25th	275,092	2,712,044	2,052,901	9,604,350	1,163,156
26th	319,659	3,446,636	3,254,842	11,564,419	1,451,127
27th	619,009	2,977,795	8,413,148	13,324,522	2,032,731
28th	406,855	2,554,764	4,357,096	11,830,183	2,509,661
29th	994 202	3,475,016	5,662,337	13,853,844	2,793,131
30th	1,156,569	5,889,617	21,528,429	20,002,387	3,903,340
31st	2,022,413	7,101,103	48,219,810	28 619 519	5,080,887
32nd...	1,370,857	8,822,111	5,960,166	17,645,530	5 197,685
33rd	3,882,517	4,817 767	9,021 536	26,691,757	7,973,412
34th	2,873,302	5,328,136	11,878,958	33,529,803	6,917,900

TABLE 1.—CLOTHING AND ACCESSORIES.

Year.	Cotton.	Cotton yarn.	Shirtings and prints.	Cotton velvet and cotton satin.
1st	421,974	1,239,580	1,747,508	259,307
2nd	1,087,992	3,418,148	1,923,985	377,071
3rd...	628,308	4,522,194	2,191,428	548,197
4th...	206,799	3,520,141	4,895,336	175,678
5th...	85,703	5,335,141	3,795,656	654,587
6th...	264,430	3,400,225	3,727,590	1,098,419
7th...	1,091,447	3,573,257	4,119,710	534,633
8th...	371,132	4,058,036	2,991,901	971,316
9th...	456,362	4,151,664	3,530,154	797,870
10th...	418,125	4,084,714	2,594,887	849,274
11th...	287,641	7,205,931	3,025,525	1,057,720
12th...	101,603	6,179,857	4,287,723	846,920
13th...	170,639	7,700,477	3,206,286	1,322,619
14th...	196,721	7,263,776	3,052,267	1,047,129
15th...	467,249	6,562,012	3,277,109	427,615
16th...	247,506	6,164,721	1,719,041	415,147
17th...	561,262	5,153,252	1,496,036	298,534
18th...	809,073	5,190,095	1,906,616	442,659
19th...	695,086	5,905,457	1,424,865	419,445
20th...	913,967	8,235,204	2,024,851	523,710
21st	2,221,769	13,611,898	3,205,553	518,556

Year.	Cotton.	Cotton yarn.	Shirtings and prints.	Cotton velvet and cotton satin.
22nd	5,668,838	12,522,039	3,048,125	551,395
23rd...	5,365,153	9,928,062	2,673,129	614,443
24th...	8,199,251	5,589,290	2,511,211	410,810
25th...	12,324,655	7,131,980	2,675,977	1,104,033
26th...	16,151,570	7,284,243	3,171,380	1,345,063
27th...	19,610,761	7,977,366	3,790,776	1,966,301
28th...	24,822,097	7,082,975	4,465,676	1,280,233
29th...	32,573,352	11,372,001	6,715,409	3,612,277
30th...	43,620,214	9,625,258	5,748,946	2,474,024
31st	45,744,371	8,547,589	7,010,081	2,458,509
32nd	62,210,716	4,963,326	6,028,490	1,345,892
33rd...	59,471,629	7,043,046	9,704,069	4,527,135
34th...	60,650,362	4,873,738	4,500,388	2,138,028

TABLE 2.—Clothing and Accessories.

Year.	Wool.	Italian cloths.	Muslin de lain, etc.	Woolen and worsted cloths.	Others.
1st	—	2,786	—	235,645	2,659,784
2nd	—	—	—	606,171	2,959,043
3rd...	—	42,617	—	646,306	2,626,740
4th...	—	17,759	—	840,039	4,027,023
5th...	—	—	—	3,036,480	5,940,743
6th...	—	155,599	1,076,444	1,320,896	7,766,977
7th...	—	50,616	981,237	112,887	3,454,451
8th...	—	214,695	2,393,158	530,868	4,791,707
9th...	—	188,480	2,263,273	594,601	2,278,048
10th...	—	496,081	2,373,621	684,936	3,465,935
11th...	—	339,814	2,693,767	702,653	3,998,465
12th...	—	651,929	3,126,043	212,109	2,886,389
13th...	—	898,429	3,478,057	188,481	3,563,754
14th...	—	531,827	2,709,341	89,235	3,139,293
15th...	—	573,495	1,221,785	181,881	2,410,541
16th...	89,845	995,091	1,618,072	272,699	2,483,166
17th...	42,519	450,338	1,839,998	535,714	2,438,660
18th...	75,385	828,055	906,617	474,344	2,394,652
19th...	150,002	857,037	830,774	814,121	2,408,472
20th...	189,899	921,662	1,126,675	1,904,737	4,577,331
21st	300,369	1,485,059	2,364,092	1,266,803	4,754,081
22nd	302,085	1,378,852	1,979,344	802,148	5,536,039
23rd...	369,914	1,686,642	2,784,393	1,056,329	5,609,722
24th...	206,548	1,846,328	1,891,884	496,946	3,630,782
25th...	302,502	1,062,572	2,448,900	837,035	5,326,501
26th...	425,120	1,489,305	2,305,506	1,120,206	6,372,493

Year.	Wool.	Italian cloths.	Muslin de laine, etc.	Woolen and worsted cloths.	Others.
27th...	567,197	1,759,796	3,150,823	816,829	5,249,930
28th...	1,136,951	921,741	3,633,468	3,120,308	9,483,431
29th...	998,305	2,813,097	6,493,162	4,114,053	12,481,594
30th...	1,062,398	1,815,582	3,835,881	2,234,075	9,822,295
31st	1,642,819	1,068,270	4,408,753	3,247,752	10,431,473
32nd	4,324,427	1,132,575	4,350,934	2,535,752	10,829,943
33rd...	3,919,693	1,120,737	7,364,991	5,403,520	18,415,914
34th...	3,129,382	601,439	3,339,121	2,183,810	10,620,409

MEDICAL AND DYE-STUFF.

Year.	Alcohol.	Indigo.	Others.
1st	—	1,743	204,918
2nd	—	4,758	367,511
3rd	—	8,546	318,475
4th	—	20,859	565,748
5th	—	28,724	830 549
6th	—	3.187	937,301
7th	—	968	948,135
8th	—	6,689	1,332,536
9th	—	4 353	877,976
10th	—	7,094	1,172,397
11th	—	7,365	1,409 671
12th	—	9,098	1,469,912
13th	—	2,902	1,864,156
14th	—	9,272	1,422,826
15th	—	12,638	1,325,228
16th	—	34,678	1,217,305
17th	—	1,381	1,214,285
18th	—	6,343	1,153 562
19th	—	85,518	1,593,829
20th	—	56,654	2,278,268
21st	—	155,721	3,066,909
22nd	—	250,471	2,762,402
23rd	113,746	201,071	2,901,515
24th	325,503	186,857	2,931,608
25th	392,541	386,193	3,250,493
26th	379,476	444,208	4,303 717
27th	174,186	329,861	5,065,516
28th	440,905	581,370	6,693,439
29th	481,465	1,063,357	6,718,553
30th	969,360	1,538,022	6,152,783
31st	2,699,982	2,270,815	8,121 228
32nd	2,060,800	2 903,829	7,700,546
33rd	132,051	3 902,559	10,261,483
34th	169,886	2,665,043	8,052,086

Year.	Metals and Metallic ware.				Others.
	Bar and Rod Iron.	Rails and parts.	Plate Iron, etc.	Rails.	
1st	—	—	—	—	313,969
2nd	—	—	—	—	730,517
3rd...	—	—	—	—	483,778
4th...	—	—	—	—	731,940
5th...	—	—	—	—	573,191
6th...	—	—	52,760	—	965,913
7th...	—	—	6,132	—	1,362,181
8th...	—	—	10,715	—	1,603,963
9th...	—	—	1,616	—	1,472,611
10th...	—	—	8,701	—	1,651,810
11th...	—	—	20,145	—	2,356,249
12th...	—	—	18,233	—	2,004,228
13th...	—	162,915	9,108	—	2,513,532
14th...	—	109,047	17,287	—	2,172,991
15th...	—	247,638	15,894	—	1,689,486
16th...	404,590	43,386	229,515	268,905	1,223,926
17th...	301,852	174,998	210,487	299,729	1,072,623
18th...	296,348	361,497	214,581	414,739	1,341,284
19th...	396,720	497,816	240,281	456,499	1,593,711
20th...	447,101	653,534	275,914	393,840	2,452,609
21st...	749,916	1,462,429	324,875	875,709	3,822,480
22nd	842,511	686,871	486,963	799,840	3,357,490
23rd...	830,116	1,907,423	420,948	693,791	2,896,450
24th...	870,410	907,557	396,568	656,179	2,317,742
25th...	871,702	119,303	359,141	906,422	2,734,012
26th...	975,787	814,750	522,404	887,790	3,591,293
27th...	1,339,034	2,031,011	984,976	1,332,638	5,245,057
28th...	2,085,684	2,178,875	1,104,211	1,278,056	6,459,200
29th...	2,359,907	3,875,938	1,877,905	1,440,254	8,867,515
30th...	3,046,132	4,399,091	2,017,438	1,458,294	8,792,785
31st	4,061,805	3,257,393	2,271,871	1,150,343	12,105,051
32nd	2,603,676	493,254	3,650,856	2,223,432	10,727,128
33rd...	5,243,408	5,457,721	6,245,460	2,181,064	18,638,617
34th...	3,511,756	1,947,101	3,293,404	1,364,668	15,289,737

Year.	Miscellaneous.					Re-imported goods.
	Petroleum.	Tobacco.	Oil-cakes.	Steamships.	Others.	
1st	7,236	47,342	537	—	483,207	—
2nd	1,662	37,065	669	—	989,093	—
3rd...	21,516	40,609	50,765	—	1,951,226	—
4th...	72,170	53,668	102,333	—	1,373 731	—
5th...	160,608	129,559	3,738	—	2,801,228	—
6th...	330,599	62,641	1,354	—	3,215,995	—
7th...	306,723	72,299	24,626	—	2,623,104	2,242
8th...	573,671	60,132	10,900	599,800	2,607,323	76
9th...	444,134	56,827	408	71,675	2,551,474	136
10th...	605.598	50,872	40	1,226,400	2,599,785	801
11th...	1,803,076	51,022	25,036	100,250	3,004,400	40,488
12th...	2,185,224	58,194	118,965	39,150	2,739,506	116,707
13th...	1,400,471	54,691	233,110	140,000	2,942,350	6,186
14th...	979,112	49,953	29,335	51,800	2.508,559	6,313
15th...	2,320,905	49,747	44,468	78,000	2,174,059	5,141
16th...	2,456,261	65,883	11,802	594,800	1,973.203	12,902
17th...	1,773,361	58,228	361	1,742,624	2,306,031	45,866
18th...	1 667,722	68,963	21,672	636,886	2,345,918	29,469
19th...	2,358,498	93,099	965	95,000	3,026,945	68,684
20th...	1,871,428	149,809	229,687	523,125	4,397,348	27,924
21st	3,519,255	153,321	164,193	1,272,247	5,546,367	38,999
22nd	4,587,135	210,085	210,953	1,100,364	5,002,555	62,182
23rd...	4,950,256	214,754	194,296	732,984	4.790,963	58,226
24th...	4,535,720	273,149	355,989	671,070	4,448,135	46,598
25th...	3 328,398	313,391	824,652	431,875	4,655,896	49,137
26th...	4,401,041	473,639	599,893	865,428	5,056,068	66,543
27th...	5,135 332	378,833	822,195	8,202,549	6,326,652	110,594
28th...	4,303,929	491,048	946,028	4,700,555	10,040,185	177,281
29th...	6,331,036	843,340	3,220,600	1,724,497	11,361,321	214,918
30th...	7,667,350	1,579,782	3,315,587	8,232,648	15 276,323	155 503
31st	7.552 880	6,628,211	4.614,967	7,488,194	18,901.016	231,428
32nd	7,018,149	6,016,032	6,791 813	3,620 982	17,316,387	350 942
33rd...	14,162,652	585,460	5 496,453	2,648,136	28,308,868	673,425
34th...	14,943,401	121,09.	8,109,236	2.565,893	24,273.016	341,369

CHAPTER VI.

Provisions for encouraging Foreign Trade

CHAMBER OF COMMERCE:—Commercial and industrial bodies discharging the functions of regular chambers of commerce had previously existed in Japan even prior to the Restoration, but as an institution owing its origin to regular legisrative arrangements, the Chamber of Commerce first saw the light in September of the 23rd year. Since that time 58 chambers have already been established throughout the country. The regulations about the chambers of commerce having proved defective in working, the idea of amending them occurred both to the chambers themselve and also to the Government, which sent its officials to the West to investigate the organization of the chambers there. The draft drawn up after the due consideration by the Government and the leading business-men was, with the approval of the Diet, promulgated in March of the 35th year as a law, and this law is now in force. To enumerate the principal clauses in new legislature, the Chamber is; (1) a juridical person; (2) qualified to investigate all measures calculated to encourage trade and industry; (3) to represent to the controlling offices its views about legislature relating to trade and industry and also on all matters relating to the interests of trade and industry; (4) to give reply to the queries referred to it by the controlling offices; (5) to inquire into the situation of trade and industry and to compile statistics bearing on the same subject; (6) to undertak similar inquiries at the request of merchants or manufacturers, and also to gurantee the place of produce, price, etc., of commodities, (7) to appoint, at the request of Government offices, appraisers or consulting agents relating to trade or industry; (8) to act as arbitrator in disputes of merchants or manufacturers at the request of the parties; (9) to establish, subject to the approval of the Minister of Agriculture and Commerce, institutions of a commercial or industrial character or manage them or make other provisions calculated to encourage trade or industry.

The right of election and the right of eligibility for membership are confined only to Japanese subjects or to juridical persons established under Japanese laws. The right of election is accorded to those who are carrying on in their own names business coming under Art. 263, and items 1, 3 to 6, 8 to 12 of Art 264 of the Commercial Code; or those who are engaged in manufacturing business coming under those provisions, also to exchanges, mine-owners, and directors of juridical persons undertaking business on a larger scale. The qualifications for the enjoyment of the right are precisely specified and only those who possess this right are eligible. The regular number of members must not be more than 50; besides there are "special members" not exceeding one-fifth of the number of regular members. The election is carried on according to the method of ordinary election, compound election and class-election. The expenses for maintaining chambers are to be borne by those enjoying the right of election.

Besides the chambers existing at home, the Japanese subjects residing in the various parts of Korea, as Seoul, Fusan, Mukpho, Gensan and Jinsen have chambers of their own. Though their establishment is subject to the approval of the Japanese Consuls, those chambers do not come under the control of Japanese laws.

A number of legislative measures besides the Law of Chambers of Commerce are in force, to regulate matters to the institution.

The Higher Council of Agriculture, Commerce and Industry:—The Government does not neglect to make provisions calculated for encouraging foreign trade, on the contrary it has set apart since the 29th fiscal year (1896-'97) an item of foreign trade expansion expense in the Budget. One of such provisions was the creation of the Higher Council of Agriculture, Commerce and Industry established in the 29th year with the object of devising measures for encouraging foreign trade. The council is composed of twenty members apart from a chairman and a vice-chairman. Of the members five are officials of the Departments of Agriculture and Commerce, Foreign Affairs, Finance, and Communications, and the remaining fifteen are business men of note. At first the council deliberated on matters relating to foreign trade alone, as may be seen from the subjects placed before it for deliberation by the De-

partment of Agriculture and Commerce in its first session. Those subjects were as follows:—matters relating to (1) the dispatch of commissioners to the Yangtszkiang region of China to investigate the navigation route, (2) the expansion of banking facilities in connection with foreign trade, (3) the establishment of bonded-warehouses under supervision of the Customs Houses, (4) the expansion of the principal exports, (5) correspondence on foreign markets, (6) marine insurance, (7) control and protection of workmen (the above were placed before the 1st session held in the 29th year), (8) the operation of the gold monometallic system and its effect on agriculture, commerce and industry at home, (9) its effect on foreign trade. (10) the measures to be adopted for minimizing the evil side and for increasing the beneficial side of that effect, (11) the encouragement of the exportation of tea, (12) the encouragement of exportation of silk (the above were principal subjects discussed in the second session held in the 30th year). The council also deliberated on sundry other matters at its own initiation and passed a resolution, to give one of such instances, for totally abolishing export duties.

In June 30th year the organization of the council was amended so as to allow it to deliberate on matters relating to domestic trade as well as on matters relating to foreign trade. The number of the members was at the same time increased from 20 to 30.

Inspection of foreign markets;—The Government has been dispatching from the 28th year a number of officials and commissioners to foreign countries to cause them to investigate the state of the foreign markets, especially with the object of promoting direct export by our merchants, and also inquiring into other matters calculated to further the interests of foreign trade. Besides Government officials, student commercial agents and student manufacturers, and private individuals experienced in respective lines of trade were despatched on similar missions, the chambers supplying them with either a part or the whole of the travelling expenses. During the eight years from the 28th to 34th fiscal years altogether 124 people were sent abroad, some of them to China, others to Europe, and still others to North and South America, and a few to the South Seas, the Strait Settlements, Siberia, Korea, India, the Philippines, etc.

INDUSTRIAL GUILDS:—An outline history of legislative measures relating to industrial guilds having been given in a section of Agriculture, a brief survey of the formation of guilds of industrial and commercial interests may be sufficient in this place.

As the matters relating to guilds were left outside the control of Government offices prior to the 17th year when rules were enacted requiring the approval of the authorities in forming a guild it is not possible to ascertain how many guilds of different interests had previously existed throughout the country. The returns drawn up in November 19th year first supply reliable information on this subject. The number was as follows at that time:—

Commercial guilds...	628
Industrial guilds	404
Com. and In'al. guilds	547
Total	1,579

On the issue of the Staple Exports Guild Law in the 30th year, a number of guilds organized under the former regulations were abolished, so that at the end of the 32nd year the guilds numbered as follows:—

Commercial guilds...	538
Industrial guilds	442
Com. and In'al guilds	188
Total...	1,168

The replacement of the Law in question in the 33rd year by the Staple Commodities Law was again followed by change in the figures, thus:—

Commercial guilds...	529
Industrial guilds	433
Com. and In'al guilds	187
Total...	1,149

Of the foregoing number of guilds quite a large portion have been established in comformity with the Staple Export Guilds Law

and its successor the Staple Commodities Guild Law. This is shown in the following table:—

Year.	Commercial.	Industrial.	Com. & In'al.	Total.	Dissolved.	Number existing.
31st	18	18	24	60	—	60
32nd	27	26	52	103	—	165
33rd	18	13	43	71	2	237
34th	10	11	21	42	4	275
As existing at the end of the 34th year ...	73	62	140	—	—	—

According to the returns made in July 35th year, the guilds engaged in the manufacturing business, those in sales, and those in manufacture and sales numbered respectively 6,166 and 150.

Student Commercial Agents and Manufacturers:—These constitute one of the regular measures adopted since the 29th year as a means of expanding our foreign trade. The object is to send abroad capable young men so that they can get a practical training either at commercial establishments or in factories. The candidates are selected from among those recommended by leading business men and other influential people of the provinces. A certain amount of pecuniary help is given to the students, though there are some who decline it. All those students, whether receiving help or not, are under the control of our nearest legations or consulates, and the students receiving help are obliged to regularly send a report to the home Government about the given subject or subjects which they are intended to be studying. The number of students and the places where they got training were as follows:—

29th year—10; one each at Mexico, Germany, England, France, China, five at the United States of America.

30th year—13 (10 continued from the preceding year); one at Bombay, two additional at U.S.A.; the rest as above.

31st year—16 (13 continued from the preceding year, 4 new, and 2 not receiving help): one each at Mexico, Germany, England, British India, three each at China and France, eight at U.S.A.

32nd year—47 (15 continued from the preceding year, 27 new, 5 not receiving help): one each at Mexico, England, Belgium, Russia, Siberia, Australia, British India; six at France, five at Germany; 15 at U.S. America; 12 at China.

33rd year—58 (32 continued from the preceding year, 24 new, 2 not receiving help); 16 at U. S. America; 12 at France, six at Germany, two each at England, Russia and Siberia, one each at Belgium and Australia, 14 at China.

34th year—97 (31 continued from the preceding year, 59 new, and 7 without receiving help); 11 each at France and Germany, two each at British Canada, Mexico, Peru, Strait Settlements, and Java, three each at Belgium, Hongkong and Australia, Siberia, one each at Russia, Switzerland, and Philippines, 24 at U. S. America, 25 at China.

Commercial Samples Museum:—The importance of commercial samples museums as a means for promoting commerce and industry has long been felt in Japan which possesses already 38 establishments of this kind not to mention those that are now being set up.

The Commercial Museum established in premises of the Department of Agriculture and Commerce being the most important, though not the oldest of these institutions deserves to be described here at some length. It was established seven years ago, and contains 23,161 samples of which 12,756 are of foreign origin and the remaining 10,405 of domestic origin. Besides there are 924 by foreigners.

The samples collected by the Museum comprise commodities that now constitute the principal items of export or are likely to become so in the new future; those that are competing with import goods on our market or are qualified to do so. As to the foreign samples collected, they represent commodities of principal import or those that are likely to become so, or those that are actually competing or are likely to do so on foreign markets with the goods exported from Japan. Then samples judged to represent the situation of our industry in all its manifold forms are also placed on view in the Museum, as also raw materials of all descriptions both foreign and Japanese, that are judged capable of being exploited with profit in Japan. The Museum keeps in touch with the movement of our trade and with the situation of all important commodities, and while it serves as a medium of presenting in a business-like way all the succinct points which foreign merchants or manufacturers may wish

to know about our goods in opening regular transaction with our merchants or manufacturers, the latter are similarly supplied with all the necessary information about foreign goods. This intermediary function played by the Museum is highly appreciated both by our countrymen as well as by foreigners, so that while the Museum keeps up at the request of our people correspondence with Japanese consulates, foreign museums and such bodies so as to find for their goods suitable markets abroad, the institution extends to similar applications coming from foreign countries an equal amount of attention and satisfaction. In short the Museum is now widely regarded as one of the most convenient institutions both by Japanese and foreigners for keeping themselves in touch with the situation of commerce and industry both at home and abroad.

With this growing importance of the Museum, the number of samples either presented by Japanese or foreigners or of applications from them to place their samples on view has began to increase to a marked extent, and the Museum is even now embarrassed to find room for those samples. This is indeed a great advance on the time when the Museum experienced no small difficulty in inducing Japanese or foreign merchants or manufacturers to send samples of their goods to be exhibited in its rooms.

The Museum makes a loan of its exhibits or sometimes spares a number of its exhibits to local museums or shows with the object of more widely extending the benefit for which it was established. It also keeps up a regular correspondence with foreign museums or commercial schools, exchanges printed matters with them, and in short spares no pains for efficiently discharging its function.

Commercial Sample Museums Abroad:—The establishment of commercial sample museums in foreign countries was another item included in the foreign trade expansion programme inaugurated from the 29th year. The museums are placed under the control of the Japanese Consulates and are left in charge of merchants properly qualified for the purpose and also qualified to act as a medium for the conclusion of transactions between Japanese and foreign merchants or manufacturers. The museums thus organized numbered six in the opening year, and were established at Vladivostock, Odessa, Bombay, Singapore, Shasi, and Mexico. In the

following year one was established at Amoy. From that time till the last fiscal year several others have been started at different places, but as some whose existence was not justified by results, have been closed, at the end of the year in question the official museums existed at the following places, viz. Shasi, Hangkow, Chunking, Bombay, Newchwang, Singapore, and Bangkok. At the same time a number of private sample museums have been granted state aids, these being Ping-Yang-Hong at Fuchow, Seoul Commercial Museum at the Korean capital, the Japan-China Commercial Museum at Shanghai, and one at Constantinople. It may be stated that the samples on view at the official commercial museums comprise articles either purchased by the Government or articles presented by merchants or manufacturers concerned.

EXPERIMENTAL PRODUCTION OF COMMERCIAL COMMODITIES :— Since the 29th fiscal year the Government has caused technical schools and workshops to undertake by trust the production of commercial commodities at the request of the Government. The result of this experimental work cannot fail to improve and encourage the respective lines of industry and it has been made public.

INDUSTRIAL REPORTS :—The Bureaux of the Department of Agriculture and Commerce and Industry concerned have been compiling reports since the 28th year on industrial subjects respectively left in their charge, especially in their bearing to foreign markets and the situation of production at home. These reports which are supplying a want long felt by all the parties concerned are being distributed among the Government Offices, public institutions, and business people. The subjects previously treated were cotton fabrics, umbrellas, wood-ware, rape-seed oil, wood-wax, copper and bronze-ware, silk fabrics, handkerchiefs and other silk-ware, rugs, porcelain and earthen-ware, cloisonne-ware, cotton yarns, straw-plaits, matches, glass-ware, matting, paper and paper-ware, lacquer-ware, screens, and fans. To this list cigarettes and other manufactured tobacco, brushes, iron-ware, buttons, clocks, soap, cotton blankets, cotton knit-work, cement, cotton undershirts, stockings, beer, *sake* aud other liquors, and soy have lately been added.

Besides the reports forwarded by Japanese Consuls, student commercial agents and manufacturers, and also reports embodying the

result of investigations made either at home or abroad on industrial matters, have been published and similarly distributed.

CLASSIFIED LIST OF GUILDS.

A. MANUFACTURING.

Name.	Number.
Pharmacy	1
Gilding	1
Printing	2
Glass-ware	2
Metal-brazier	1
Straw-plaits	2
Porcelain and earthen-ware	3
Umbrella	2
Milling	1
Weaving	8
Kombu	2
Book-binding	1
Brush	1
Dyeing	2
Soap-making	2
Fans	1
Lacquer-ware	6
Matches	4
Soy and *miso*	11
Handkerchief	1
Maccaroni and vermicelli	3
Mats	2
Paper	2
Total	61

B. SALES.

Straw-plaits	2
Fertilizers	1
Rice and grains	33
Dried *daikon*	1
Medical-stuff	2

Name.	Number.
Shiitake (mushroom)	1
Raw silk	6
Weaving	3
Floor-mat facing	1
Dried marine products	2
Flour	1
Lacquer-ware	2
Coals	5
Timbers	6
Total	66

C. Manufacture and Sales.

Woven goods	63
Dyeing	1
Lacquer-ware	8
Glass-ware	1
Sugar	3
Hanging screen	1
Metal-ware	2
Porcelain and earthen-ware	8
Wood-ware	1
Ivory-ware	1
Paper	6
Matches	3
Straw-plaits	7
Embroidered-goods	1
Miscellaneous goods	2
Tapes, bands, etc	3
Wooden-box	1
Wicket-baskets	1
Bamboo-ware	1
Wax	2
Kanten	1
Fertilizers	3
Sake and liquors	1
Maccaroni and vermicelli	1

Name.	Number.
Ginseng	2
Mosquito-nets	3
Mats...	8
Cast-ware	1
Rush-hats	1
Raw silk...	2
Rush (*igusa*)	1
Weights and measures	5
Indigo	3
Kombu	1
Coal	1
Total	150
Grand total	277

Note :—The list was compiled on July 31st, of the 35th year.

PART V.

FINANCES.

CHAPTER I.—Finances.

Central Finances—Formosan Finances—Local Finances—Debts —Currency—Money market—Banks—Clearing-Houses.

I. CENTRAL FINANCES.

General Remarks:—The work of reinstating the Imperial Government a work which circumstances made comparatively easy of accomplishment, involved in no other department of government more stupendous labor than in the adjustment of the finances. This was principally due to the necessity of unifying the different final systems that had been followed for a long period by the 277 feudal daimyates that existed during pre-Restoration days, systems that were, too, in a state of extreme disorder and complication. The reason is because many of the feudal princes had been compelled by necessity to make various shifts, such as issuing fiat currency, minting debased coins, ordering the payment of taxes in advanced or contracting loans. The debts for which the feudal princes thus made themselves responsible were enormous, and these devolved entirely on the Imperial Government.

On the other hand the revenue was to an astonishing extent in arears, for its only important resource, the land tax, did not supply more than one-tenth of the whole expenditure. The Government had therefore to fall back on issuing inconvertible notes to meet this deficit. For several years after the advent of the Restoration, the finances remained in this deplorable condition. In the meanwhile the Government energetically strove to establish the taxation system on a regular and sound basis. For this the first thing to demand attention was to definitely define in regard to land the right of fief formerly exercised by the feudal princes and the right

of ownership by private individuals. As was generally the case in most other places where feudalism prevailed, the distinction was far from clear: the princes besides holding the right of ownership over all the land in their respective dominions. The right of ownership was therefore rather the right of tenantry, and the tax or tenant-rate paid with rice was the principal source of revenue to the feudal princes. The rate of this so-called tax was far from uniform; but it was excessively heavy, ranging from 30 to 70 per cent. of the yield of the field. Some sort of tax was also imposed on manufacture, but this was of course insignificant.

The revenue of the princes was principally devoted to maintaining their military organization and supporting their retainers. The farmers and merchants were therefore made use of merely as tool for supporting this unproductive class.

The Shogunate was peculiarly situated in regard to finances. It exercised the power of control over the feudal princes, but it did not govern directly the people inhabiting the princes' fiefs as apportioned by the Shogunate. The people in those fiefs were not therefore obliged to pay any tax to the central Government, all their duties in that direction ended with their respective lords. The princes, however, were under obligation to discharge at their own expense the military and other services demanded by the Shogunate, and also to pay tribute, mostly nominal, to it. The ordinary revenue of the Shogunate consisted of the taxes levied in its own dominions, so that in this respect the Shogunate was in a position no better than the feudal princes it had under its control. Indeed the Shogunate's revenue was even less than that of some powerful princes.

The Imperial Government therefore at once found itself confronted by a grave financial complication when, on the fall of the feudal system, the real right of administration passed into its hand. Moreover the transfer of the power of the central administration to the new Government in the first year was not accompanied by that of the national revenue. Even the revenue that the Shogunate enjoyed did not wholly go to the control of the rehabilitated Government, and yet it had to undertake the gigantic task of thoroughly reorganizing political and social institutions. It was necessary first of all to devise some financial arrangements which all those under-

takings absolutely required. As the first step towards consummating the arrangements it was necessary to deal with the important question of the fiefs and pensions of the feudal princes and their retainers. This was the most delicate affair of all, inasmuch as the Restoration of the Imperial régime was by no means welcomed by all sections of the people; on the contrary some of them were, for one reason or another, bitterly opposed to it. But for accomplishing this grand work of the unification of administration, which was the primary object of the reinstatement of the Imperial power, it was absolutely necessary to secure the compliance to it of all the influential quarters, and with their compliance to put all the important measures under the new political system. This mighty national movement was fortunately backed by all the powerful feudal princes, who in the 2nd year surrendered their fiefs of their own accord to the central Government, and thus laid the foundation of the present imposing fabric of the Imperial Government. With the enforcement in the 4th year of the local system, the reality of administrative unification was brought about. The privileges enjoyed by the feudal princes and their retainers were annuled, the whole country was placed under one and the same legislative measures, and all the distinctions of social rank and class were abolished.

With regard to the surrender of their fiefs by the feudal princes, which led to the clear setting up of the right of ownership of land by private individuals, those princes were actuated by the noble altruistic principle that as they were subjects of the sovereign they had no right to own land or to rule people who were subjects of the same rightful lord as themselves. On its part, the reinstated Government, while maintaining its authority in accordance with the advanced principles of law, apportioned in a fair and equitable manner the right of ownership of land to private individuals, and paved the way toward laying the foundation of sound system of finances. The duty of people as tax payers was for the first time solved properly, and the burden of taxation was made uniform throughout the whole land.

In establishing the system of finance the Government undertook first of all the re-arrangement of the land tax, and this is a measure which should remain prominent in the financial history of the Empire.

It was in the 4th year that the measures relating to it were taken in hand. In the 6th year a law embodying the result of the deliberations and investigations conducted in this connection was promulgated, but it was not till the 16th year that the great work of reorganizing the tax had been completed. This taxation measure was one of special importance, in that it first established in a thorough manner the principle of the unification of the taxes.

The principal features in the new land tax law were these :—

(*a*). The establishment in a firm and fixed way of the right of ownership of land by private individuals.

When feudal system was abolished in European countries the central government had to pay a price for the fiefs held by the feudal lords, but in Japan the feudal lords were recompensed with public bonds when they were induced to surrender their dominions.

(*b*). The removal of all the restrictions that had formerly existed in connection with the ownership of land by private individuals.

During the pre-Restoration days the purchase or sale of land by common people was forbidden ; nor were farmers left free in determining the crop they wished to cultivate in their land. The fact was as rice was used as medium for the payment of the land tax, and as the production of this cereal was therefore regarded as the most important factor in the economy of the various little states, the feudal governments were apt to interfere in the work of the farmers even to the extent of ordering the cultivation of rice when the soil was not suited for it. The new law of Land Tax while confirming indisputably the right of the individuals to own land, removed all restrictions on land, and allowed land-owners to sell or mortgage their land or to use it in any way they liked. The discontinuation of that pernicious practice of interference has enabled the farmers to utilize their land to the best advantage, and to further the development of the national resources.

(*c*). The determination of the official value of land throughout the country.

As the products of the land formed the basis of taxation in former times, the tax-gatherers of each feudal government inspected every year the condition of the harvest in the dominions of such government and determined the rate of the tax payable for the year. There was no fixed rate. The new Government decided to determine the official value of the land and to place the taxation on a basis at once sound and fair. It was a gigantic task, but with admirable energy the Government set about the work, and finally completed it in a comparatively short space of time. The method adopted in determining the official value consisted in taking the average harvest for five years, to convert it into money by taking next the average price ruling in the same period, using that price as basis of capitalization and of hence determining the value of the land. The work was concluded in the 14th year. To carry the valuation to a state of greater perfection and fairness, the re-assessment was carried out in the 32nd year.

(*d*). The payment of taxes with money.

Taxes were formerly payable in kind, that is in rice or some other such produce. By the enforcement of the new law of taxation and the cessation of the quasi-tenantry nature of the land tax, the tax began to be paid with money and by fixed rate according to the official value of the land.

All those changes have considerably reduced the burden of the farmers. The tax was at first fixed at 3 per cent. of the assessed value, but this was reduced to 2½ per cent. in the 10th year. After having remained unaltered for a long while the rate was slightly raised, for five years, from the 32nd to the 36th year, the increase being at the rate of 2½ per cent. of the assessed value for dwelling land in urban districts and 8/1,000 for other kinds of land.

Such is a brief history of the Land Tax law. It may be thought strange that this particular tax should have occupied such a prominent position in the finances of the Government in the early stage of its re-instatement. The reason is simply this, that Japan was at that time an almost purely agricultural country and all other forms of industry, such as manufactures, etc., were then in a very primitive state. Thus in the year when the assessment of the value of land

was completed, the proceeds of the land tax amounted to 43,000,000 *yen* out of the total of 60,000,000 *yen* derived from all kinds of taxes.

With the progress of the country, however, demands on State disbursements necessarily advanced, and the Government was obliged to seek some suitable sources from which new taxes could be collected. The sources from which taxes had been drawn during the pre-Resteration days were throughly investigated, and it was decided that some indirect taxes should be imposed. Then, coming to the 20th year, a new indirect tax, in the shape of an income tax was inaugurated.

Of the indirect taxes newly established, the tax on *sake* was, as it is still to-day, the most important. The system as enforced to-day consists in levying the tax according to the quantity of the liqor brewed, that is per *koku*. The tax was created in the 11th year. The rate of the tax has been advanced by rather rapid stages, and what was only 4 *yen* per *koku* before the adoption of the so-called post-bellum programme has been raised to 15 *yen*. Indeed the expansion of national finances since the Japan-China war has been something extraordinary. Prior to that the expenditure amounted to about 80 million *yen*. In the 29th fiscal year, when several post-bellum expansion measures had been inaugurated, the corresponding figures rose at one jump to 170 million *yen*, then to 220 million *yen* in the 30th year, 290 millions in the 33rd year, and 280 millions in the 35th year. The war, in short, marks a new era for our finances, as indeed for all other departments public and private life in Japan.

The successful conduct of the post-bellum measures demanding the expansion of the finance hand in hand with that of economic affairs, the Government, while raising taxes or floating loans, has not neglected to take such measures as were calculated to encourage the development of economic undertakings, such as the improvement of the monetary system or the establishment of additional important banking mechanisms. In short, as the post-bellum finance covers a wide field, it is impossible to treat the subject at any length here. The reader who is interested in the subject is advised to consult the History of the Post-bellum Finance published in English by the Imperial Treasury. All that can be stated here about this great question will be merely categorical. Suffice it here to state that of the large number of measures undertaken

in that programme, the most important are the expansion of the armaments, the establishment of the Iron Foundery, the expansion of the existing railways and construction of new railways, the expansion of the telephone and telegraphic service; the creation of the Kyoto Imperial University and of additional High Schools and Technical and Commercial Institutes; the establishment of the Japan Hypothec Bank, of Local Hypothec Banks, Hokkaidō Colonial Bank and of the Formosan Bank; and lastly several other measures for promoting agriculture, manufacture and trade, and for controlling unruly rivers. All those measures have been carried out with a view to developing the national resources and industries.

It being impossible to meet with the proceeds of the ordinary revenue, the enormous expenses involved in the undertakings contemplated it was decided that the outlays on account of those extraordinary works should be met by means of the Indemnity and loans, and that the additional requirement on account of ordinary expenditures should be obtained by increased tax measures. In pursuance of this policy these measures were carried out in the 29th fiscal year, then in the 31st and lastly in the 34th, the additional proceed from this new source being estimated to amount to 95 million *yen*, as will be demonstrated in the following paragraphs.

The tax on *saké* that stood at the rate of 9 *yen* per *koku* in the 29th year, was raised to 12 in the 31st and 15 in the 34th. The most recently imposed tax was the beer tax which was at the rate of 7 *yen* per *koku*. The proceeds from the tax on all the different kind of liqors amount to about 55 million *yen*, so that this source stands at the head of all direct or indirect taxes in the amount it yields to the revenue.

The rate of the Land Tax increased in the 32nd year to 3.3 per cent of the assessed value brings in an additional revenue to the amount of about 8 million *yen*, but this addition is procurable for only five years ending the 36th year, when the rate is to be restored to the original 2½ per cent. One thing to be noted in this connection is the marked advance that has taken place recently in the price of rice, and hence of the capitalized value of land on which tax is based, the present price being about three fold that prevailing on the occasion of the last assessment. Therefore even at the rate

of 3.3 per cent. it practically amounts to only 1 per cent. when considered in connection with that advance.

The income tax was at the same time advanced by 1 to 5½ per cent. but the creation of the business tax in the 29th year was a far more important measure. This tax being extremely complicated in its assessment, all that can be stated within the limited space at our disposal is that the tax is imposed according to the proceeds realized from the sales of commodities, the amount of the rental of the buildings, of capital invested, the number of persons employed, etc. The business tax is one of special importance in view of its relation to the legislature, it being connected with franchise, for a man who pays this tax above a certain limit is entitled to exercise this important right. The relation between the exercise of legislative functions, and the business tax has developed a new feature in the history of the national legislature, as it has led to the admission (as the land tax did in the case of agriculturists from the first) of the business classes to the exercise of this important privilege, and therefore to agriculturists and business people being more evenly balanced than formerly in the business of national representation.

The inauguration of the tobacco monopoly measure by discontinuing the former stamp duty on tobacco was another the special financial feature incidental to the post-bellum programme. The monopoly originated from the idea of increasing the revenue from this source and of doing away with the complicated stamp duty and the license duty.

The post-bellum programme has not confined itself, in regard to taxation, to creating new taxes or increasing the old, for it has at the same time abolished some of the existing taxes and has generally simplified taxation.

The existing taxes, besides those already enumerated comprise the sugar tax, soy tax, tax on the issue of convertible notes, tax on bourses, tax on mining, tonnage dues, tax on patent medicines, registration tax, stamp duties, etc. Then there are proceeds from such Government undertakings as railways and post and telegraph services, and the proceeds from these sources are steadily increasing.

Customs duties were at first insignificant, for with the tariff fixed, under the then existing treaty, at 5 per cent. *ad valorem*, and with foreign trade remaining inactive, the receipts realized did not for several years exceed 3 million *yen*. The development of the

trade was naturally attended by a great increase, for in the 31st year receipts, even under the old 5 per cent. rate, amounted to about 9 million *yen*. With the revision of the treaty in the following year, tariff autonomy was partially restored. At the same time export duties were entirely abolished, and the tariff was confined to imports alone. The tariff rate, according to the new arrangement, ranges from 5 to 35 per cent. *ad valorem*, and the enforcement of this new system was at once followed by a marked increase in the receipts. In the 32nd fiscal year, for instance, it amounted to 16 million *yen*, and in the 34th year to 17 millions, so that this source now constitutes an important item in our national revenue.

Even from the brief survey given above of the development of our taxation system, it will be seen how our financial system is growing more and more sound with the development of the national economy. At the beginning of the Meiji era, the land tax was practically the sole resource of revenue for the Government, but to-day the list contains a large number of taxes some of which even yield a larger revenue than the land tax.

The reason why the taxation system has been here described at some length arises from our desire to show that our finance rests on a firm basis and also because the financial system must occupy a place of special importance in any explanation of the national condition of the new Japan. For other aspects of our finances only a short notice will therefore be given. A brief description of the history of the management of the finances will not however be out of place here. As might have been expected, the financial system was extremely complicated in the beginning of the era, and no regular method existed with regard to financial administration. Each Department of the State was financially independent, and there was no unity in the State finances. On the enforcement in the 4th year of the first local administration system, it was arranged that all financial matters should be controlled by the Treasury, while, coming to the 9th year, a regular procedure was adopted for receipts and payment, a forerunner of the present Budget system. In the 13th year the Board of Audit was created and placed under the direct control of the Emperor. Considerable difficulty was experienced in bringing financial administration under the control of the Treasury

and the auditing business in charge of the Board of Audit, for each Department of the State had been used to separately look after its own money matters while no definite system had existed in regard to the finances of the State. It was therefore feared that an attempt to unify financial affairs might not be beneficial in its result. Experience has, however, entirely falsified this prediction, and the new arrangement has proved as efficient as it has been beneficial. The 15th year is indeed a memorable one in the history of Japanese finances, for from that year the sole control by the Treasury of the right of receiving or paying Government money, was obtained; and all irregularities that had previously attended this important branch of State affairs were entirely removed. In this year too the Bank of Japan was created, and was made to act as cashier for the Government. To mention other important financial measures, the budgets and settled accounts were made public every year from the 19th year, while on the occasion of the promulgation of the Imperial Constitution in the 22nd year, the Law of Finance was amended, and our financial system took the form it possesses to-day. The Budgets, as provided in the Constitution, are compiled by the Minister of Finance and carried into effect by him with the approval of the Diet. The Settled Accounts are introduced to the Diet also after having been audited by the Board of Audit.

On the advent of the Constitutional régime, a new epoch was inaugurated in financial affairs, so that while previously these affairs were arranged at the discretion of the Government alone, the approval of the Diet is now required for them. The compilation of budgets and the reporting of settled accounts are of course no novel process in the West, but its adoption by Japan is a significant sign proving how Japan has energetically striven to regulate her finances according to the enlightened system of the West.

A brief history of Japanese finances having been given in this opening section, matters relating to national debts, reform of currency-system, and other kindred subjects shall be treated under special headings.

Statistical Tables:—Before proceeding so far, statistics relating to State expenditures and revenue, proceeds from different items of revenue, and other affairs shall be given below:—

TABLE I.—Annual State Revenue and Expenditure Pertaining to the General Account.

(unit of *yen*).

Revenue.

Fiscal year.	Ordinary.	Extraordinary.	Total.
1st (*a*)	3,664,780	29,424,533	33,089,313
2nd (*b*)	4,666,056	29,772,349	34,438,405
3rd (*c*)	10,043,628	10,945,872	20,959,500
4th (*d*)	15,340,922	6,803,676	22,144,598
5th (*e*)	24,422,742	26,022,431	50,445,173
6th (*f*)	70,561,688	14,945,557	85,507,245
7th (,,)	71,090,481	2,355,063	73,445,544
8th (*g*)	83,080,575	3,240,502	86,321,077
8th	63,786,587	5,696,090	69,482,677
9th	55,684,997	3,796,039	59,481,036
10th	49,967,723	2,370,410	52,388,133
11th	53,558,117	8,885,632	62,443,749
12th	57,716,322	4,435,428	62,151,751
13th	58,036,574	5,330,681	63,367,255
14th	64,304,512	7,185,368	71,489,880
15th	69,888,873	3,619,554	73,508,427
16th	76,425,687	6,681,171	83,106,858
17th	72,102,109	4,567,464	76,669,654
18th (*h*)	56,429,622	5,7272,213	62,156,835
19th	71,094,268	14,231,876	85,326,144
20th	76,068,094	12,092,980	88,161,074
21st	74,253,414	18,703,519	92,956,933
22nd	82,355,442	14,332,537	96,687,979
23rd	78,593,498	27,875,856	106,459,354
24th	76,264,852	26,966,636	103,231,488
25th	80,728,018	20,733,893	101,461,911
26th	85,883,080	27,886,300	113,769,380
27th	89,748,454	8,421,574	98,170,028
28th	95,444,652	22,988,069	118,432,721
29th	104,904,501	82,114,922	187,019,423
30th	124,222,964	102,167,159	226,390,123
31st	132,869,336	87,184,792	220,054,128
32nd	177,328,528	76,925,996	254,254,524
33rd	192,170,080	103,684,787	295,854,867
34th	201,752,362	65,393,465	267,145,827
35th	226,114,613	56,318,351	282,432,964

Fiscal year.	Expenditure. Ordinary.	Extraordinary.	Total.	Surplus or Deficit.
1st (*a*)	5,506,253	24,998,833	30,505,086	2,584,227
2nd(*b*)... ..	9,360,231	11,425,609	20,785,840	13,652,565
3rd (*c*)... ..	9,750,003	10,357,669	20,107,672	851,828
4th (*d*) ...	12,226,382	7,008,776	19,235,158	2,909,440
5th (*e*) ...	42,474,919	15,255,106	57,730,025	*7,284,852
6th (*f*) ...	50,639,552	12,039,048	62,678,600	22,828,645
7th (,,) ...	60,001,916	22,267,612	82,269,528	*8,823,984
8th (*g*) ...	52,842,348	13,292,424	66,134,772	20,186,305
8th	56,613,037	12,590,205	69,203,242	279,435
9th	56,815,326	2,493,631	59,308,957	172,079
10th	45,344,216	3,084,109	48,428,325	3,909,808
11th	55,988,710	4,954,626	60,941,336	1,502,413
12th	55,205,539	5,112,040	60,317,579	1,834,172
13th	60,297,322	2,843,574	63,140,896	226,359
14th	60,413,710	11,046,611	71,460,321	29,559
15th	59,750,727	13,729,940	73,480,667	27,760
16th	67,914,176	15,192,682	83,106,858	0
17th	60,724,554	15,938,554	76,663,108	6,546
18th (*h*) ...	47,643,037	13,472,277	61,115,314	1,041,521
19th	67,613,793	15,610,167	83,223,960	2,102,184
20th	66,042,669	13,410,367	79,453,036	8,708,038
21st	66,439,716	15,064,308	81,504,024	11,452,909
22nd	63,785,569	15,928,103	79,713,672	16,974,307
23rd	66,752,431	15,372,972	82,125,403	24,343,951
24th	62,936,312	20,619,579	83,555,891	19,675,597
25th	63,818,030	12,916,710	76,734,740	24,727,171
26th	64,545,499	20,036,273	84,581,872	29,187,508
27th	60,421,346	17,707,297	78,128,643	20,041,385
28th	67,148,007	18,169,173	85,317,180	33,115,541
29th	100,712,816	68,143,692	168,856,508	18,162,915
30th	107,695,127	115,983,717	223,678,844	2,711,279
31st	119,072,144	100,685,424	219,757,568	296,560
32nd	137,590,418	116,575,120	254,165,538	88,986
33rd	149,134,167	143,615,893	292,750,060	3,104,807
34th	160,363,583	106,493,241	266,856,824	289,003
35th	177,596,966	104,156,229	281,753,195	679,769

Note :—The length of term of fiscal years given in this and the following four tables is not uniform, (*a*) comprises 13 months ending December 31st of the 1st year of Meiji (1868); (*b*) 9 months ending September 30th, 2nd year, (*c*) 12 months ending September 30th, 3rd year; (*d*) 13 months ending October 31st, 4th year; (*e*) 14 months ending December 31st, 5th year; (*f*) 12 months ending December 31st, of the respective years; (*g*) 6 months ending June 30th 8th year. The rest comprise 12 months each, the 8th to 17 fiscal years ending on June 30th and the others on March 31st.

The figures for the 1st to 32nd fiscal years represent settle accounts; those for the 33rd and 34th years actual accounts as they stood in November 34th and August 35th respectively, and lastly those for the 35th year the estimates in the budget.

The figures marked by an asterisk (*) denote deficit.

TABLE II—Sources of the Annual State Revenue, Pertaining to the Geneal Account.

(unit of *yen*).

Ordinary Revenue.

Fiscal year.	Taxes.	Stamp receipts.	Receipts from public undertakings and state property.	Transferred for the payment of interest on deposits.
1st	3,265,483	—	101,856	—
2nd	4,431,332	—	127,708	—
3rd	9,634,864	—	193,761	—
4th	14,270,058	—	327,471	—
5th	22,566,525	—	229,375	—
6th	64,537,656	354,478	2,376,256	—
7th	64,836,528	332,650	2,601,703	—
8th	75,808,346	412,445	3,550,504	—
8th	57,764,039	700,751	5,175,820	—
9th	50,250,312	670,944	4,643,593	—
10th	46,231,261	761,725	2,854,395	—
11th	49,740,694	666,949	3,021,107	—
12th	53,462,901	784,918	3,304,588	—
13th	52,692,914	962,701	4,197,878	—
14th	58,813,403	1,002,333	4,288,261	—
15th	64,893,531	1,039,710	3,763,322	—
16th	64,223,783	975,636	4,335,841	—
17th	63,799,177	1,078,963	4,812,012	—
18th	50,116,710	709,701	4,287,510	—
19th	63,356,863	922,594	5,304,752	—
20th	65,279,634	878,235	6,126,533	—
21st	63,324,078	1,305,264	6,841,354	—
22nd	70,506,158	622,127	7,677,951	—
23rd	65,363,608	580,763	8,733,420	994,497
24th	63,660,190	588,099	8,285,177	634,229
25th	66,415,217	659,999	9,585,488	632,513
26th	69,169,393	761,531	11,602,974	913,214
27th	70,417,709	793,437	13,957,192	1,036,609
28th	73,567,908	900,980	15,767,916	1,018,057
29th	75,042,271	6,493,055	17,555,922	1,548,193
30th	93,700,752	7,182,667	19,491,926	1,535,679
31st	96,187,335	7,605,170	25,410,159	1,099,000
32nd	126,034,543	11,942,825	34,742,006	2,024,281
33rd	133,926,095	12,289,237	40,073,716	2,381,896
34th	139,530,008	12,274,702	44,304,617	2,319,314
35th	153,430,541	14,304,951	51,821,303	3,309,805

Fiscal year.	Fund transferred for redemption of Formosan public works loan.	Education fund transferred.	Other funds transferred.	Miscellaneous receipts.	Total.
1st	—	—	—	297,441	3,664,780
2nd	—	—	—	107,016	4,666,056
3rd	—	—	—	214,998	10,043,628
4th	—	—	—	743,393	15,340,922
5th	—	—	—	1,626,842	24,422,742
6th	—	—	—	3,293,298	70,561,688
7th	—	—	—	3,319,600	71,090,481
8th	—	—	—	3,309,280	83,080,575
8th	—	—	—	145,977	63,786,587
9th	—	—	—	120,148	55,684,997
10th	—	—	—	120,342	49,967,723
11th	—	—	—	129,367	53,558,117
12th	—	—	—	163,916	57,716,323
13th	—	—	—	183,081	58,036,574
14th	—	—	—	200,512	64,304,512
15th	—	—	—	192,310	69,888,873
16th	—	—	6,658,303	232,124	76,425,687
17th	—	—	2,190,926	221,107	72,102,190
18th	—	—	1,113,155	202,546	56,429,622
19th	—	—	—	1,510,059	71,094,268
20th	—	—	—	3,783,962	76,068,094
21st	—	—	—	2,782,718	74,253,414
22nd	—	—	—	3,549,206	82,355,442
23rd	—	—	—	2,921,210	78,593,498
24th	—	—	—	3,097,157	76,264,852
25th	—	—	—	3,134,801	80,728,018
26th	—	—	—	3,435,968	85,883,080
27th	—	—	—	3,543,507	89,748,454
28th	—	—	—	4,139,791	65,444,952
29th	—	—	2,711,823	1,553,237	104,904,501
30th	—	—	—	2,311,940	124,222,964
31st	—	—	—	2,567,672	132,866,336
32nd	23,333	—	—	2,561,539	177,328,527
33rd	338,939	623,611	—	2,536,589	192,170,080
34th	563,768	541,752	—	2,218,201	201,752,362
35th	1,000,303	500,000	—	1,747,710	226,114,613

EXTRAORDINARY REVENUE.

Fiscal year.	Amount of paper money issued.	Proceeds from public loans.	Temporary loans.	Chinese indemnity transferred.	Forestry funds transferred.	Surplus of the previous year transferred.
1st	24,037,390	—	4,732,482	—	—	—
2nd	23,962,160	—	911,500	—	—	—
3rd	5,354,513	4,782,400	—	—	—	—
4th	2,145,488	—	—	—	—	—
5th	17,825,444	—	—	—	—	—
6th	—	10,833,600	—	—	—	—
7th	—	—	—	—	—	—
8th	—	—	—	—	—	—
8th	—	—	—	—	—	—
9th	—	—	—	—	—	—
10th.....	—	—	—	—	—	—
11th.....	—	—	—	—	—	—
12th.....	—	—	—	—	—	—
13th.....	—	—	—	—	—	—
14th.....	—	—	—	—	—	—
15th.....	—	—	—	—	—	—
16th.....	—	—	—	—	—	—
17th.....	—	—	2,000,000	—	—	—
18th.....	—	—	3,066,205	—	—	—
19th.....	—	5,187,832	4,000,000	—	—	1,041,522
20th.....	—	6,048,725	—	—	—	2,102,184
21st	—	3,821,045	—	—	—	3,198,178
22nd ...	—	4,003,396	—	—	—	4,348,975
23rd.....	—	—	—	—	353,223	20,598,721
24th.....	—	—	—	—	—	24,343,951
25th.....	—	—	—	—	—	19,675,598
26th.....	—	—	—	—	—	24,727,171
27th.....	—	—	—	—	—	5,748,423
28th.....	—	—	—	—	—	20,041,385
29th.....	—	29,076,600	—	11,798,389	—	33,115,541
30th.....	—	36,389,874	—	40,360,796	—	18,162,915
31st	—	35,352,806	—	46,187,071	—	2,711,270
32nd ...	—	36,166,404	3,200,000	32,636,905	347,337	200,558
33rd.....	—	38,139,599	5,500,000	31,240,140	868,207	88,087
34th.....	—	24,822,108	11,000,000	20,883,573	1,141,042	3,104,808
35th.....	—	4,740,000	2,000,000	8,065,856	2,145,904	761,011

Fiscal year.	Extraordinary Revenue.					Grand total.
	Other funds transferred.	Local contributions to expenses incurred by the State for the benefit of certain prefectures.	Proceeds from State property sold.	Other miscellaneous receipts.	Total.	
1st.....	—	—	—	654,661	29,424,533	33,089,313
2nd ...	—	—	—	4,898,239	29,772,349	34,438,405
3rd.....	—	—	—	778,959	10,915,872	20,959,500
4th.....	—	—	—	4,658,188	6,803,676	22,144,598
5th.....	—	—	—	8,196,987	26,022,431	50,445,173
6th.....	—	—	—	4,111,957	14,945,557	85,507,245
7th.....	—	—	—	2,355,063	2,355,063	73,445,544
8th.....	—	—	—	3,240,502	3,240,502	86,321,077
8th.....	—	—	2,418,362	3,277,728	5,696,090	69,482,677
9th.....	—	—	849,252	2,946,786	3,796,039	59,481,036
10th.....	—	—	685,305	1,685,105	2,370,410	52 338,133
11th.....	—	—	776,288	8,109,344	8,885,632	62,443,749
12th.....	—	—	619 047	3,816,381	4,435,428	62,151,751
13th.....	—	—	1,183,427	4,147,254	5,330,681	63,367,255
14th.....	—	—	737,427	6,447,941	7,185,368	71,489,368
15th.....	—	—	545,737	3,073,817	3,619 554	73,508,457
16th.....	3,995,256	—	928,476	1,757,439	6,681,171	83 106,858
17th.....	182,379	—	814,622	1,574 463	4,567,464	76,669,654
18th.....	1,262,884	—	394,194	1,003,930	5,727,213	62,156,835
19th.....	1,354,698	—	1,087,763	1,560,061	14,231,876	85,326,144
20th.....	767,292	—	727,510	2,447,269	12,092,980	88,161,074
21st	7,831,811	—	1,858,383	1,994 102	18,703,519	92,956,933
22nd ...	1,581,433	—	2,266,247	2,132,486	14,332,537	96,687,979
23rd.....	5,520,725	—	726,187	677,000	27,875,856	106,469,354
24th.....	1,588,053	—	610,454	424,178	26,966,636	103,231 488
25th.....	239 670	—	627 885	190,740	20,733,893	101,461,911
26th.....	468,524	—	678,968	2,011,637	27,886,300	113,769,380
27th.....	145,252	—	655,683	1,872,216	8,421,574	98,170,028
28th.....	155.557	—	645,356	2,145,771	22,988,069	118,432,721
29th.....	29,594,817	324,400	1,110,965	3,203,210	108,214 922	213,119,423
30th.....	1,233,705	398,200	922,500	4,699,169	102,167,159	226,390,123
31st	844,699	664,859	800,942	623,136	87,184,792	220,054,128
32nd ...	3,401,104	637,282	827,957	412,449	76,925,996	254,254,523
33rd.....	20,000,000	1,246,975	931,288	5,669,591	103,684,787	295,854,867
34th.....	—	1,060,654	1,224,560	2,156,720	65,393.465	267,145,827
35th.....	—	1,197,141	1,111,125	36,297,314	156,318,351	282,432,964

Note:—For the 26th year some of the items belonging to stamp receipts were included, according to their nature, to various headings, instead of being treated according to the ordinary mode of classifying settled accounts. Hence the figures for the same period as given in this table may not agree with those given in other statistical publications.

The figures marked with an asterix (*) include temporary loans incurred on account of the Boxer trouble.

TABLE III.—Annual Amount of Taxes from Various Sources.

(unit of *yen*).

Taxes in Force.

Fiscal year.	Land tax.	Business tax.	Income tax.	*Saké* tax.	Sugar excise.	Soy tax.
1st.....	2,009,014	—	—	—	—	—
2nd ...	3,355,964	—	—	—	—	—
3rd.....	8,218,969	—	—	—	—	—
4th.....	11,340,984	—	—	—	—	—
5th.....	20,051,917	—	—	16,208	—	—
6th.....	60,604 242	—	—	961,031	—	—
7th.....	59,412,429	—	—	1,683,530	—	—
8th.....	67,717,947	—	—	1,310,381	—	—
8th.....	50,345,328	—	—	2,555,595	—	—
9th.....	43,023,426	—	—	1,911,639	—	—
10th.....	39,450 551	—	—	3,050,318	—	—
11th.....	40,454,714	—	—	5,100,063	—	—
12th.....	42,112,648	—	—	6,463,894	—	—
13th.....	42,346,181	—	—	5,511,335	—	—
14th.....	43,274 032	—	—	10,646,163	—	—
15th.....	43,342,188	—	—	16,329,624	—	—
16th.....	43,537,649	—	—	13 490,730	—	—
17th.....	43,425,996	—	—	14,068,133	—	—
18th.....	43,033,679	—	—	1,053,465	—	640,179
19th	43,282,477	—	—	11 743 778	—	1,188,413
20th.....	42,152,171	—	527,724	13 869,808	—	1,252,721
21st	34,650,528	—	1,066,895	17,063,801	—	1,350,986
22nd ...	42,161,328	—	1,052,982	16,439,720	—	1,288,078
23rd.....	40,084,496	—	1,092,378	13,912,126	—	1,210,575
24th.....	37,457,500	—	1,110,554	14 686,920	—	1,254,106
25th.....	37,925,243	—	1,132,359	15,812,888	—	1,278,011
26th.....	38 808,680	—	1,238,763	16,637,436	—	1,332,793
27th.....	39,291,495	—	1,353,518	16,130 471	—	1,382,879
28th.....	38,692,868	—	1,497,095	17,748,735	—	1,463,073
29th.....	37,640,283	52	1 810,221	19,476,512	—	1,534,022
30th.....	37,964 727	4,416,249	2,095,092	31,105 172	—	1,532 101
31st	38,440,976	5 478,020	2,351,420	32,959 857	—	1,535,543
32nd ...	44,861,082	5,507,147	4,837,320	48,918,423	—	2,453,392
33rd.....	46 717,797	6,051,515	6,368,039	50,293,951	—	3,153,890
34th.....	46,633,653	6,477,217	6,832,885	58,013,467	612,344	3,464,023
35th.....	46,845,971	6,604,003	6,109,809	63,805,207	6,077,005	3,328,499

Fiscal year.	Tax on convertible bank notes.	Tax on bourses.	Mining tax	Tonnage dues.	Tax on *Sake* exported from Okinawa perfecture.	Duties on Patent medicine.	Customs duties.
1st.....	—	—	—	—	—	—	720,867
2nd ...	—	—	—	—	—	—	502,817
3rd.....	—	—	—	—	—	—	648,453
4th.....	—	—	—	—	—	—	1,071,631
5th.....	—	—	—	—	—	—	1,331,560
6th.....	—	—	—	—	—	—	1,685,975
7th.....	—	—	—	—	—	—	1,498,258
8th.....	—	—	44,492	—	—	—	1,038,104
8th.....	—	—	7,431	—	—	—	1,718,733
9th.....	—	—	8,903	—	—	28,455	1,988,668
10th.....	—	—	9,339	—	—	87,089	2,358,654
11th.....	—	—	10,610	—	—	74,219	2,351,635
12th.....	—	—	12,073	—	—	78,770	2,691,205
13th.....	—	—	12,990	—	—	86,041	2,624,177
14th.....	—	—	26,631	—	—	84,246	2,569,666
15th.....	—	—	18,806	—	—	364,942	2,613,291
16th.....	—	—	14,816	—	—	495,441	2,681,321
17th.....	—	—	13,501	—	—	363,589	2,750,165
18th.....	—	—	18,346	—	—	282,127	2,085,250
19th.....	—	269,111	21,447	—	—	438,658	2,989,686
20th.....	—	189,762	29,176	—	—	424,033	4,135,652
21st	—	173,048	46,738	—	2,110	451,714	4,615,494
22nd ...	—	219,391	95,579	—	11,093	485,155	4,728,023
23rd.....	1,986	254,162	* —	—	14,900	498,976	4,392,566
24th.....	—	230,355	* —	—	14,814	517,940	4,539,687
25th.....	—	223,812	134,033	—	12,380	589,219	4,991,524
26th.....	—	350,969	178,869	—	17,834	636,433	5,125,372
27th.....	6,969	587,691	241,418	—	25,186	670,133	5,755,456
28th.....	408,662	780,311	247,061	—	19,848	778,613	6,785,640
29th.....	926,240	1,001,173	335,502	—	35,199	881,604	6,728,323
30th.....	560,975	1,106,208	421,381	—	56,831	982,381	8,020,513
31st	1,251,610	856,036	567,992	—	72,616	1,061,438	9,092,592
32nd ...	846,582	1,177,040	605,948	240,323	81,572	113,525	15,936,890
33rd.....	1,404,794	1,228,461	624,248	336,352	156,834	117,799	17,009,815
34th.....	1,693,599	836,397	727,452	361,098	117,496	121,901	13,630,815
35th.....	1,145,416	1,087,180	774,091	336,353	154,420	116,976	17,045,611

Fiscal year.	Fishery dues in Hokkaidō.	Tobacco tax.	Confectionery tax.	Tax on vehicles.	Tax on vessels.	Other miscellaneous taxes.	Total.
1st	—	—	—	—	—	535,602	3,265,483
2nd ...	—	—	—	—	—	572,551	4,431,332
3rd ...	—	—	—	—	—	767,442	9,634,864
4th.....	—	—	—	—	—	1,857,443	14,270,058
5th.....	—	—	—	—	7,803	1,159,037	22,566,525
6th.....	—	—	—	—	83,123	1,203,285	64,537,656
7th.....	—	—	—	—	125,677	2,116,634	64,836,528
8th.....	—	—	—	96,578	12,336	5,588,508	75,808,346
8th.....	342,526	206,748	—	213,193	128,515	2,245,970	57,764,039
9th.....	348,584	244,149	—	234,902	133,119	2,292,467	50,250,312
10th.....	361,121	227,080	—	261,859	194,738	230,412	46,231,261
11th... ..	509,595	274,533	—	289,134	133,589	542,602	49,740,694
12th.....	813,416	269,575	—	335,940	134,658	550,722	53,462,901
13th.....	899,087	292,881	—	379,486	135,289	405,447	52,692,914
14th.....	817,837	276,332	—	428,211	133,418	556,867	58,813,403
15th.....	864,712	280,849	—	453,869	135,219	490,031	64,893,531
16th.....	559,195	2,154,211	—	462,088	218,040	610,292	64,223,783
17th.....	501,443	1,294,316	—	478,512	230,453	673,069	63,799,177
18th.....	554,778	905,187	437,893	484,029	238,334	383,543	50,116,710
19th.....	611,400	1,235,814	544,901	531,103	250,469	249,606	63,356,863
20th.....	220,273	1,590,752	595,738	577,390	258,945	255,219	65,279,364
21st.....	218,776	1,907,343	628,323	611,396	270,468	257,488	63,324,078
22nd ...	215,101	1,981,540	647,033	648,096	280,330	252,709	70,506,158
23rd ...	223,406	1,814,033	662,647	664,229	282,530	254,625	65,363,608
24th.....	219,086	1,798,137	614,192	680,812	278,373	255,714	63,660,100
25th.....	303,656	2,161,655	587,001	729,634	276,915	256,887	66,415,217
26th.....	303,769	2,640,351	593,809	773,948	275,701	254,666	69 160,393
27th.....	301,925	2,680,468	637,626	811,032	281,525	259,920	70 417,709
28th.....	301,344	2,740,774	689,133	861,951	291,350	261,450	73 594,008
29th.....	301,522	2,977,630	546,136	469,491	152,087	226,274	75,042 271
30th.....	359,289	4,935,173	—	—	9	147,051	93,700,752
31st	353,188	2 120,555	—	—	11	45,481	96,187,335
32nd ...	357,611	—	—	—	—	97 688	126 034,543
33rd.....	367,962	—	—	—	—	94,938	133,926,005
34th.....	—	—	—	—	—	7,661	139,530,008
35th.....	—	—	—	—	—	—	153,430,541

TABLE IV.—Receipts from Public Undertakings and State Property.

(unit of *yen*).

Fiscal year.	Post and Telegraph.	Forests.	State property.	Profit from tobacco monopoly.	Railway.
1st	—	—	101,856	—	—
2nd ...	—	—	94,184	—	—
3rd.....	—	—	155,917	—	—
4th.....	1,238	—	166,532	—	—
5th.....	18,334	—	48,246	—	—
6th.....	138,302	—	160,804	—	544,233
7th.....	282,227	—	106,093	—	468,247
8th.....	705,351	—	243,159	—	542,337
8th.....	748,938	—	1,268,337	—	642,204
9th.....	920,585	94,503	157,826	—	808,883
10th.....	809,856	62,789	229,203	—	384,088
11th.....	968,266	178,356	248,077	—	456,622
12th.....	1,307,028	61,054	247,239	—	698,784
13th.....	1,638,421	411,266	258,557	—	888,561
14th.....	1,923,308	282,258	199,629	—	1,127,479
15th.....	1,703,527	176,002	146,334	—	913,846
16th.....	2,346,945	311,160	176,569	—	933,778
17th.....	2,209,856	300,933	218,820	—	750,539
18th.....	1,601,188	240,697	149,862	—	453,890
19th.....	3,009,974	456,218	264,105	—	678,124
20th.....	3,400,859	633,514	257,251	—	1,021,749
21st	3,272,067	899,798	215,059	—	1,346,226
22nd ...	3,859,232	648,255	735,188	—	1,434,953
23rd.....	4,637,987	732,580	206,969	—	1,722,102
24th.....	5,049,360	744,366	241,642	—	1,419,611
25th.....	5,518,913	872,481	223,257	—	2,085,068
26th.....	6,487,688	1,060,913	221,936	—	2,709,760
27th.....	8,381,049	844,300	220,884	—	3,176,707
28th.....	9,553,879	1,134,853	217,664	—	3,602,594
29th.....	10,406,083	1,286,614	413,924	—	3,970,999
30th.....	12,204,012	1,577,114	232,618	292,142	4,558,565
31st	13,603,285	1,625,632	205,805	5,145,999	4,278,547
32nd ...	17,424,951	1,930,218	222,934	7,559,534	6,901,653
33rd.....	20,699,331	2,271,025	209,175	7,244,159	8,090,963
34th.....	20,934,570	2,326,862	244,338	10,866,700	7,706,161
35th.....	25,856,730	2,914,387	223,706	11,728,526	8,817,510

Fiscal year.	Mint profit.	Mining profit.	Other profit.	Miscellaneous receipts.	Total.
1st.....	—	—	—	—	101,856
2nd ...	—	—	—	33,524	127,708
3rd.....	—	—	—	37,849	193,766
4th.....	—	—	—	159,701	327,471
5th.....	—	38,895	—	123,900	229,375
6th.....	1,095,594	154,845	—	281,478	2,376,256
7th.....	1,024,517	316,122	—	404,497	2,601,703
8th.....	253,081	869,389	—	937,187	3,550,504
8th.....	1,450,036	799,949	—	266,356	5,175,820
9th.....	1,152,037	827,221	—	682,538	4,643,593
10th.....	834,285	251,202	—	282,972	2,854,395
11th.....	910,496	102,350	—	156,940	3,021,107
12th.....	505,628	237,945	—	246,910	3,304,588
13th.....	487,410	397,728	—	115,935	4,197,878
14th.....	385,233	308,729	—	61,627	4,288,264
15th.....	462,607	289,321	—	71,685	3,763,322
16th.....	398,155	100,087	—	69,147	4,335,831
17th.....	376,065	233,131	—	722,668	4,812,012
18th.....	1,459,102	178,922	—	203,849	4,287,510
19th.....	88,469	271,689	302,734	233,439	5,304,752
20th.....	241,383	155,703	254,906	161,168	6,126,533
21st	200,712	490,142	243,509	173,841	6,841,354
22nd ...	524,062	27,514	104,916	343,831	7,677,951
23rd.....	681,595	15,046	424,288	312,853	8,733,420
24th.....	296,590	—	207,405	326,203	8,265,177
25th.....	295,481	—	272,466	317,822	9,585,488
26th.....	494,461	—	252,185	376,031	11,602,974
27th.....	637,423	—	265,314	431,515	13,957,192
28th.....	429,869	—	416,196	415,861	15,767,916
29th.....	772,588	506	294,201	411,007	17,555,922
30th.....	—	—	240,249	387,226	19,491,926
31st	—	—	183,640	367,251	25,410,159
32nd ...	—	—	274,682	428,028	34,742,006
33rd.....	—	—	571,568	988,389	40,073,716
34th.....	—	—	521,099	1,704,886	44,304,617
35th.....	—	-	171,961	2,108,483	51,821,303

Note:—As the mining tax for the 23rd and 24th years could not be distinguished from other license fees among which it was counted in, it was included with other license fees in the heading of "Other miscellaneous taxes."

TABLE V.—Annual Application of the State Expenditure Pertaining to the General Accounts, the Civil List and the Departments of the State.

(unit of *yen*).

Fiscal year.	Civil List.	Ordinary. Foreign Affairs.	Home Affairs.	Finance.
1st	249,595	111,671	2,818	3,639,462
2nd	384,955	151,949	15,291	7,109,653
3rd	554,232	46,626	5,683	7,475,142
4th	513,801	83,532	9,808	8,037,979
5th	912,754	349,229	132,796	29,765,330
6th	678,204	699,342	72,752	36,855,985
7th	775,035	711,105	11,593,167	31,917,093
8th	443,837	146,299	7,445,247	31083,656
8th	933,211	644,942	11,345,277	24,851,556
9th	1,118,137	535,044	10,917,655	24,950,982
10th	1,249,286	518,287	10,838,161	18,697,931
11th	1,266,382	576,818	10,887,076	29,166,518
12th	1,342,889	804,748	11,574,341	25,446,073
13th	1,393,559	1,138,638	12,965,636	26,370,598
14th	1,909,893	675,534	8,679,471	31,549,850
15th	2,184,354	726,105	8,212,196	29,130,919
16th	2,363,651	748,285	9,998,442	33,320,368
17th	2,327,101	785,299	9,224,383	25,584,429
18th	1,797,246	608,247	8,929,943	18,985,172
19th	2,449,835	787,782	9,742,410	30,596,845
20th	2,500,000	750,580	9,688,532	28,149,249
21st	2,690,888	749,472	9,475,916	28,129,164
22nd	3,000,000	728,791	9,125,552	25,116,713
23rd	3,000,000	742,051	7,671,272	27,238,063
24th	3,000,000	704,115	7,795,789	23,540,822
25th	3,000,000	671,437	7,770,597	24,213,245
26th	3,000,000	623,982	7,662,106	24,915,268
27th	3,000,000	718,627	7,493,926	25,462,541
28th	3,000,000	1,047,050	7,502,230	29,935,724
29th	3,000,000	1,216,105	*13,858,033	38,393,881
30th	3,000,000	1,445,849	8,262,075	39,173,414
31st	3,000,000	1,641,557	9,621,053	38,734,238
32nd	3,000,000	1,929,427	10,762,427	47,001,622
33rd	3,000,000	2,425,724	10,954,703	47,297,090
34th	3,000,000	2,153,243	9,899,403	51,566,742
35th	3,000,000	2,284,270	10,583,417	62,142,664

Fiscal year.	Army.	Navy.	Justice.	Education.
1st	1,059,798		385,200	57,709
2nd	1,547,966		46,936	103,481
3rd	1,500,174		44,534	123,612
4th	3,252,966		61,533	114,965
5th	7,699,347	1,869,044	464,835	571,641
6th	8,497,755	1,190,313	767,383	1,303,536
7th	8,733,176	1,685,237	883,788	1,330,348
8th	7,262,599	3,522,300	259,365	869,741
8th	6,959,736	2,825,843	1,111,505	1,743,514
9th	6,904,829	3,424,998	1,385,459	1,695,311
10th	6,035,940	3,167,512	1,299,425	1,164,298
11th	6,409,005	2,804,021	1,214,936	1,138,653
12th	7,766,916	3,079,856	1,345,043	1,187,542
13th	8,434,530	3,165,222	1,779,823	1,177,198
14th	8,208,609	3,014,758	1,786,737	895,897
15th	8,588,117	3,160,492	2,070,556	935,035
16th	10,250,424	3,080,634	2,082,765	940,477
17th	10,618,712	3,193,300	2,267,106	961,690
18th	9,606,237	2,634,658	1,673,704	695,996
19th	11,464,226	4,699,511	2,549,701	976,846
20th	11,805,903	4,941,524	2,931,263	1,109,089
21st	11,786,416	5,468,552	2,976,148	1,031,228
22nd	12,206,362	5,277,332	3,016,614	1,003,256
23rd	12,437,989	5,786,381	3,510,863	1,054,697
24th	12,656,741	5,412,491	3,568,324	950,911
25th	12,498,235	5,347,186	3,500,936	970,674
26th	12,419,829	5,141,475	3,451,911	932,562
27th	7,828,074	4,573,605	3,387,609	923,384
28th	8,410,211	4,913,244	3,339,542	1,047,011
29th	22,613,590	7,351,330	3,452,933	1,422,389
30th	28,746,263	9,543,889	3,543,489	1,985,729
31st	32,562,072	11,191,475	3,825,687	2,336,691
32nd	35,577,310	14,577,114	4,965,174	3,033,053
33rd	36,123,892	16,911,000	7,803,152	4,456,708
34th	37,433,911	19,484,953	10,436,392	4,740,253
35th	38,432,317	21,349,054	10,837,646	4,845,708

Fiscal year.	Agriculture and Commerce	Communications.	Total
1st	—	—	5,506,253
2nd	—	—	9,360,231
3rd	—	—	9,750,003
4th	—	121,798	12,226,382
5th	—	709,943	42,474,919
6th	—	574,282	50,639,552
7th	—	2,372,967	60,001,916
8th	—	1,809,304	52,842,348
8th	—	6,197,453	56,613,037
9th	—	5,882,911	56,815,326
10th	—	2,373,376	45,344,216
11th	—	2,523,301	55,986,710
12th	—	2,658,128	55,205,539
13th	281,098	3,591,020	60,297,322
14th	2,690,801	1,002,160	60,413,710
15th	3,337,770	1,405,183	59,750,727
16th	3,461,509	1,667,621	67,914,176
17th	3,461,116	2,301,508	60,724,554
18th	553,341	2,158,493	47,643,037
19th	933,872	3,412,765	67,613,793
20th	506,631	3,659,998	66,042,669
21st	541,463	3,590,469	66,439,716
22nd	461,485	3,849,464	63,785,569
23rd	876,169	4,434,946	66,752,431
24th	808,558	4,498,561	62,936,312
25th	947,003	4,898,717	63,818,030
26th	928,942	5,469,524	64,545,599
27th	862,344	6,171,236	60,421,346
28th	909,745	7,043,250	67,148,007
29th	1,142,498	8,262,057	100,712,816
30th	1,364,923	10,629,496	107,695,127
31st	1,644,371	14,515,000	119,072,144
32nd	1,779,455	14,964,836	137,590,418
33rd	2,209,883	17,952,015	149,134,167
34th	2,559,002	19,089,674	160,363,583
35th	2,948,913	21,172,977	177,596,966

Note:—Of the expenditures for the years prior to the 18th year, those items which were not assigned to any departments are placed in this table under such departments as they might belong to by their nature.

* In the ordinary and extraordinary expenditures of Home Affairs for the 29th year are included those of the Colonial Department which was created in the 29th year and abolished in the following year.

Fiscal year.	Extraordinary. Civil List.	Foreign Affairs.	Home Affairs.	Finance.
1st	—	—	—	21,446,022
2nd	—	—	—	9,347,977
3rd	—	—	—	9,753,835
4th	—	—	—	6,913,386
5th	—	—	—	14,550,147
6th	—	—	—	11,017,780
7th	—	—	3,790,972	14,238,009
8th	—	—	2,567,459	8,418,914
8th	—	—	232,687	12,357,518
9th	—	—	—	2,493,631
10th	—	—	436,917	2,124,016
11th	—	—	243,508	4,208,699
12th	—	—	272,419	3,722,778
13th	—	—	51,818	1,203,310
14th	—	—	347,710	9,059,817
15th	—	—	35,569	12,387,772
16th	—	—	42,853	10,181,141
17th	—	—	29,394	12,079,508
18th	—	—	22,385	10,082,788
19th	—	—	1,822,959	9,303,956
20th	—	—	2,325,918	5,480,542
21st	—	—	2,373,935	5,656,925
22nd	—	80,000	4,365,531	3,593,510
23rd	—	1,029	4,010,792	1,891,479
24th	—	2,375	10,458,597	2,820,509
25th	—	—	2,899,268	1,075,162
26th	—	19,265	11,465,283	1,185,170
27th	—	311,888	2,426,552	4,748,562
28th	—	300,987	3,668,978	2,051,804
29th	700,000	173,674	*15,690,603	2,579,837
30th	—	118,460	19,556,088	10,224,769
31st	—	125,185	13,055,539	6,143,094
32nd	—	101,932	17,314,247	6,766,518
33rd	—	309,907	15,386,964	6,408,930
34th	—	614,620	15,854,030	6,559,410
35th	—	92,724	17,065,028	41,550,611

Fiscal year.	War.	Navy.	Justice.	Education.
1st	3,552,811	—	—	—
2nd	2,077,632	—	—	—
3rd	603,834	—	—	—
4th	95,390	—	—	—
5th	704,959	—	—	—
6th	1,021,268	—	—	—
7th	4,238,631	—	—	—
8th	2,306,051	—	—	—
8th	—	—	—	—
9th	—	—	—	—
10th	—	—	—	—
11th	20,090	16,494	—	—
12th	352,437	58,892	—	—
13th	158,925	250,650	—	—
14th	383,340	245,961	—	—
15th	413,348	249,162	—	—
16th	316,910	3,935,019	—	—
17th	501,300	3,067,564	—	—
18th	571,858	2,699,473	—	—
19th	168,926	4,191,297	2,725	13,000
20th	613,772	4,876,752	20,397	13,000
21st	957,627	4,341,004	42,498	10,000
22nd	1,919,341	4,045,826	147,870	165,657
23rd	3,095,090	4,372,923	205,270	110,109
24th	1,523,426	4,089,201	89,300	69,616
25th	2,137,016	3,785,921	106,627	223,577
26th	2,301,397	2,959,446	75,561	135,240
27th	2,580,862	5,679,549	51,648	125,304
28th	1,605,723	8,607,025	77,259	106,105
29th	30,628,934	12,654,428	162,896	327,950
30th	31,401,725	40,850,645	215,016	626,870
31st	21,335,582	47,338,427	310,087	658,703
32nd	16,973,888	47,084,496	480,453	1,199,741
33rd	38,714,310	41,363,895	531,476	1,377,608
34th	20,947,869	24,494,375	515,866	1,487,990
35th	8,262,789	7,076,586	565,640	2,045,156

Fiscal year.	Agriculture and Commerce.	Communication.	Total.	Grand total.
1st	—	—	24,998,833	30,505,086
2nd	—	—	11,425,609	20,785,840
3rd	—	—	10,357,669	20,107,672
4th	—	—	7,008,776	19,235,158
5th	—	—	15,255,106	57,730,025
6th	—	—	12,039,048	62,678,600
7th	—	—	22,267,612	82,269,528
8th	—	—	13,292,424	66,134,772
8th	—	—	12,590,205	69,203,242
9th	—	—	2,493,631	59,308,957
10th	—	523,176	3,084,109	48,428,325
11th	—	465,835	4,954,626	60,941,336
12th	—	705,514	5,112,040	60,317,579
13th	352,707	826,164	2,843,574	63,140,896
14th	31,817	977,966	11,046,611	71,460,321
15th	7,181	636,908	13,729,940	73,480,667
16th	178,631	538,054	15,192,682	83,106,858
17th	166,197	94,591	15,938,554	76,663,108
18th	73,547	22,226	13,472,277	61,115,314
19th	76,260	31,044	15,610,167	83,223,960
20th	51,968	28,000	13,410,367	79,453,036
21st	722,319	960,000	15,064,308	81,504,024
22nd	611,234	999,134	15,928,103	79,713,672
23rd	342,281	1,343,999	15,372,972	82,125,403
24th	115,851	1,450,704	20,619,579	83,555,891
25th	377,657	2,311,482	12,916,710	76,734,740
26th	493,177	1,401,734	20,036,273	84,581,872
27th	333,905	1,449,027	17,707,297	78,128,643
28th	325,975	1,425,312	18,169,173	85,317,180
29th	488,032	4,738,193	68,143,692	168,856,508
30th	1,514,188	11,475,956	115,983,717	223,678,844
31st	2,312,004	9,406,803	100,685,424	219,757,568
32nd	4,939,904	21,713,941	116,575,120	254,165,538
33rd	9,372,883	30,149,620	143,615,893	292,750,060
34th	8,516,244	27,502,837	106,493,241	266,856,824
35th	4,049,070	23,448,625	104,156,229	281,753,195

II. FORMOSAN FINANCES.

General Remarks:—Formosa which China formally ceded to Japan in April 28th year to Japan by the Shimonoseki treaty of peace was placed under military administration from that time to the end of March 29th year, all the expenses required in the administration forming part of the military expenditure. From April 1st, 29th, to March 31st of the 30th year the finances of the island were included in the general account of the central Treasury. From the next fiscal year the Formosan finances were set apart as a special account with the object of making the island self-supporting in time.

During the first years of this new financial arrangement the central Treasury was required to subsidize the Formosan Treasury every year to the extent of from 9,000,000 to 6,000,000 *yen*, but at present this burden on the Treasury has been reduced to about 2 millions. In the meanwhile the ordinary revenue of Formosa had increased from 2 to 13 or 14 millions. In the principal items of ordinary revenue are proceeds from Government undertakings, supplemented by taxes, stamp receipts, etc. The extraordinary revenue proceeds from loans and the subsidy from the central Treasury are the principal items. In the proceeds from Government undertakings, the three Government monopolies of camphor, opium and salt constitute the bulk of the whole sum; next to them come proceeds from post and telegraphs, railways, etc. Customs duties head the list among the different items of taxes, followed by land tax, tea tax, sugar tax, etc.

The following tables will give a concise demonstration of the state of finances of Formosa.

Financial Statistics:—Statistics relating to the Formosan finances are:—

TABLE I.—Revenue and Expenditure of Formosa.

(unit of *yen*.)

Fiscal year.	Revenue.			Expenditure.		
	Ordinary.	Extra-ordinary.	Total.	Ordinary.	Extra-ordinary.	Total.
29th (settled)	2,714,822	4,457	2,716,297	5,913,243	3,733,232	9,646,475
30th („)	5,315,880	5,967,386	11,283,266	7,707,894	2,779,626	10,487,610
31st („)	7,493,650	4,788,311	12,281,961	8,008,796	3,208,391	11,217,187
32nd („)	10,138,652	7,267,966	17,426,618	10,304,738	6,018,810	16,323,548
33rd („)	13,606,437	9,198,766	22,805,203	13,061,480	9,743,723	22,805,203
34th (Actual	14,401,979	6,492,662	20,894,641	14,206,223	6,646,218	20,852,441
35th (estimates) ...	12,650,695	7,205,319	19,856,014	13,245,073	6,610,941	19,856,014

TABLE II.—Receipts from different Sources of Revenue.

(unit of *yen*).

Ordinary.

Fiscal year.	Taxes.	Stamp receipts.	Proceeds from Gov. under-takings and State property.	Others.	Total.
29th (settled) ...	2,029,072	—	563,145	119,605	2,711,822
30th („) ...	2,624,013	—	2,513,900	177,966	5,315,879
31st („) ...	2,886,954	22,712	4,424,950	159,034	7,493,650
32nd („) ...	3,460,799	53,220	6,570,757	73,875	10,158,651
33rd („) ...	3,212,145	54,732	9,692,796	102,848	13,062,521
34th (actual ...	3,452,694	62,800	8,063,560	135,569	11,714,648
35th (estimates .	3,608,522	71,152	8,873,079	97,942	12,650,695

Extraordinary.

Fiscal year.	Subsidy from central Treasury.	Proceeds from loans.	Others.	Total.	Grand total.
29th (settled) ...	—	—	4,457	4,457	2,716,279
30th („) ...	5,959,048	—	8,338	5,967,386	11,283,265
31st („) ...	3,984,540	—	803,770	4,788,310	12,281,960
32nd („) ...	3,000,000	3,200,000	1,067,966	7,267,966	17,426,617
33rd („) ...	2,598,611	5,500,000	1,108,563	9,207,174	22,269,695
34th (actual ...	2,386,690	4,864,383	800,615	8,051,686	19,766,334
35th (estimates).	2,459,763	4,740,000	5,550	7,205,313	19,856,014

TABLE III.—Receipts from different items of Taxation.

(unit of *yen*).

	Land tax.	Tea tax.	Sugar tax.	Camphor tax.
29th	752,698	—	201,298	399,137
30th	853,650	412,143	242,004	393,645
31st	782,058	410,198	260,715	419,800
32nd	481,955	392,714	224,813	379,188
33rd	912,923	405,268	178,144	—
34th	869,003	383,190	479,958	—
35th	861,791	402,757	689,419	—

	Mining tax.	Customs duties.	Others.	Total.
29th	10,602	665,334	—	2,290,069
30th	17,675	732,276	30,615	2,624,008
31st	29,644	907,864	85,672	2,886,951
32nd	18,231	1,481,407	122,487	3,460,795
33rd	21,282	1,567,801	126,727	3,212,145
34th	20,000	1,534,534	166,009	3,452,694
35th	21,281	1,499,167	134,107	3,608,522

TABLE IV.—Proceeds from different sources of Government undertakings and State Property.

(unit of *yen*).

	Post and telegraph.	Railway.	Salt.	Opium.	Camphor.	Others.	Total.
29th	225,492	89,162	—	—	—	248,491	563,145
30th	334,049	231,045	—	1,640,210	—	308,596	2,513,900
31st	369 019	288 518	—	3,467,334	—	300,079	4,424,950
32nd... ...	441,390	345,851	270,827	4,249,577	917,877	345,235	6,570,757
33rd	511,175	412,301	358,333	4 234,980	3,752 268	423 739	9,692,796
34th	536 842	526,086	510,203	2,804,894	3,253,392	432,143	8,063,560
35th	628 307	722,500	740,411	3,917 086	2,385,329	479,446	8,873,079

III. LOCAL FINANCES.

General Remarks:—The civic corporation system was first established in the 11th year, by the promulgation of the Prefectural Assembly Regulations and the Local Tax Regulations, but it was on the promulgation of the Law for Cities, and Towns and Villages in the 21st year and of the Law for Districts and Prefectures in the 23rd year that the civic corporation system was completed. The Law for Districts and Prefectures was amended in the 32nd year.

According to the existing regulations, the expenditures of civic corporations, are determined by estimates for which the approval of the local legislative bodies is necessary. The revenue consists of receipts accruing from the property of the corporations, fees for using such property, and other receipts. Any deficit is met by levying taxes, which are as follows for prefectural finances:—

Land rate not exceeding one-third of the land-tax.
Business tax and miscellaneous taxes.
House tax.

Taxes for civic corporations are:—

Rate on district taxes and prefectural taxes.
Special taxes either direct or indirect.

The District does not levy taxes upon its inhabitants, and the expenses required by it are supplied by the towns and villages contained in it, the ratio to be duly alloted. The allotment is collected

by each town or village on the approval of its legislative council, and forwarded to the coffers of the district.

Before any new local tax is levied it must receive the approval of the prefectural or city, town or village legislative council as the case may be. For a tax of importance the sanction of the Ministers of Home Affairs and of Finance must be obtained.

The development of self-government affair is inevitably attended by an increase of expenditure. Less than ten years ago the prefectural and communal revenue aggregated about 53,680,000 *yen* and the expenditure about 44,730,000 *yen*. In the 32nd year the revenue and expenditure amounted to 129,300,000 *yen* and 112,860,000 *yen* respectively. This increase is chiefly attributable to the greater disbursements required on account of public work, agriculture, education, industry, sanitary affairs, etc. A tendency in a similar direction, must be expected with the progress of the times, and the central Government is exercising strict attention to prevent any undue expansion of the local expenses. The following tables will demonstrate the progress of prefectural and communal finances subsequent to the 23rd year :—

Financial Statistics :—St atistics relating to local finances are :—

TABLE I.—Annual amount of town and village revenue.

(unit of *yen*.)

		23rd year.	24th year.	25th year.	26th year.	27th year.
Rates on direct national taxes.	Land rate	5,679,278	5,913,112	5,926,105	6,025,720	6,349,446
	Income tax rate ...	24,581	28,802	31,532	40,459	42,251
	Business tax rate...	—	—	—	—	—
Rates on prefectural taxes.	House tax	7,541,930	6,999,372	7,263,244	7,436,677	8,082,583
	Business tax rate...	606,301	601,828	609,582	670,290	703,886
Rate on indirect national tax		1,173	1,556	1,251	1,634	1,291
Special taxes.	Average rate	356,506	317,849	280,432	309,235	372 164
	Sundries	50,193	70,118	102,884	135,255	138,711
Service in kind		324,395	274,361	305,342	313,296	268,851
Property in kind		31,110	14,626	9,697	6,711	12,013
Total		14,615,467	14,221,624	14,530,069	14,939,277	15,971,196
Receipts from other sources..		5,705,457	7,605,952	8,610,321	9,152,767	10,308,516
Grand total		20,320,924	21,827,576	23,140,390	24,092,044	26,281,612

		28th year.	29th year.	30th year.	31st year.	32nd year.
Rates on direct national taxes.	Land rate	6,895,880	7,520,419	8,721,137	9,913,975	10,250,588
	Income tax rate ...	55,667	66,073	120,222	155,085	312,636
	Business tax rate...	—	—	311,337	533,177	578,188
Rates on prefectural taxes.	House tax	9,561,533	10,699,232	13,173,019	15,765,174	18,564,453
	Business tax rate...	830,924	983,982	1,113,562	1,360,892	1,576,817
Rate on indirect national tax		748	1,101	733	932	3,530
Special taxes.	Average rate	415,202	544,598	566,599	747,854	777,832
	Sundries	161,844	185,273	230,595	279,677	321,185
Service in kind		265,615	285,960	476 103	374,949	400,344
Property in kind...		7,108	9,690	9,428	9,705	9,282
Total		18,194,521	20,296,328	24,722,735	19,141,420	32,794,855
Receipts from other sources..		10,756,229	12,040,832	16,144,099	17,549,587	20,406,697
Grand total		28,950,750	32,337,160	40,866,834	46,691,007	53,201,552

Note :—In consequence of the destruction by fire, in the 27th year of the documents at a certain village office in Nagano-ken, a sum of 1,900 *yen* was included in the grand total alone, its distribution among the different headings not being clear.

TABLE II.—Annual Amount of Town and Village Expenditure.

(unit of *yen*).

Items.	23rd year.	24th year.	25th year.	26th year.	27th year.
Offices	6,649,958	6,554,562	6,600,276	6,741,055	6,974,378
Assemblies...	317,211	315,453	355,588	343,251	336,973
Public works	4 759,018	5,447,582	5 636,870	5,462,255	6,295,709
Education	6,260,326	6,738,466	7,290,187	7,909,885	8,237,433
Sanitary	406,984	318,798	380,967	432,659	705,920
Police...	163 849	151,645	158,108	163 009	304,770
Industry	115,118	86,569	113,213	128,967	161,397
Public loans	140 393	242,203	365,023	469,882	644,708
Control of property ...	5,476	8,758	15,996	35,461	56,424
Taxes & other burdens.	120,105	263,387	333,810	366,003	467,413
Sundries	207 936	404,043	243,112	281,789	347,062
Funds and reserves ...	33 172		43,444	69 571	99,603
Subsidies and contributions	—		8,490	14 806	12,297
Others	58,443		49,446	32,898	52,274
Total	19,237,989	20,531,466	21,598,530	22,451,441	24,696,364

Items.	28th year.	29th year.	30th year.	31st year.	32nd year.
Offices	7,316,991	7,829,910	8,887,201	10,347,929	15,515,996
Assemblies...	363,598	378,797	425,068	457,621	474,912
Public works	5,433,882	5,591,935	8,466,227	7,427,855	7,083,796
Education	9,159,759	10,639,378	12,695,094	14,593,100	16,984,949
Sanitary	1,802,466	1,712,367	1,822,181	3,121,742	4,628,219
Police...	352,465	393,576	350,280	379,959	392,296
Industry	145,094	369,898	820,667	495,615	570,295
Public loans	960,575	1,183,418	1,693,851	2,323,787	2,609,806
Control of property ...	62,252	89,463	135,291	138,157	210,760
Taxes & other burdens.	624,532	1,194,301	1,687,204	2,557,262	3,084,007
Sundries	463,300	539,843	654,681	821,687	872,451
Funds and reserves ...	113,809	164,693	470,290	608,199	799,493
Subsidies and contributions	5,966	9,830	22,144	71,592	86,256
Others	71,138	55,762	71,637	98,374	63,019
Total	26,875,827	30,153,171	38,201,816	43,443,879	49,376,255

TABLE III.—Annual amount of municipal revenue.

(unit of *yen*.)

		23th year.	24th year	25th year.	26th year.	27th year
Direct tax rates.	Land tax rate ...	103,951	104,530	98,495	103,993	109,217
	Income tax rate ...	115,769	113,951	129,155	136,031	157,697
	Business tax rate ...	—	—	—	—	—
Local tax rates.	Household rate ...	327,112	402,034	364,641	409,064	416,271
	House tax	410,865	384,498	338,615	367,003	481,154
	Business tax	364,056	375,125	399,830	485,330	612,211
Indirect national tax rates ...		11,825	10,559	11,435	14,779	34,850
Special taxes		28,838	45,191	59,530	111,088	90,871
Service in kind		—	—	—	—	610
Total		1,362,416	1,435,888	1,401,701	1,627,288	1,902,881
Ultra-taxation receipts		1,089,030	4,204,584	8,149,362	8,383,342	8,481,926
Grand total		2,451,446	5,640,472	9,551,063	10,010,530	10,384,807

		28th year.	29th year.	30th year.	31st year.	32nd year.
Direct tax rates.	Land tax rate ...	112,921	119,862	168,209	239,597	243,506
	Income tax rate ...	178,558	222,291	304,102	410,836	692,927
	Business tax rate ...	—	—	660,266	965,494	1,170,527
Local tax rates.	Household rate ...	465,283	503,205	612,414	731,672	955,608
	House tax	531,619	603,747	784,021	1,056,247	1,482,067
	Business tax	780,947	989,292	605,146	526,138	655,023
Indirect national tax rates ...		8,543	7,889	20,402	274	14,749
Special taxes		171,375	229,499	325,975	719,059	875,872
Service in kind		610	—	—	—	—
Total		2,249,856	2,675,785	3,480,535	4,649,017	6,090,279
Ultra-taxation receipts		8,721,315	8,449,331	10,181,533	10,661,724	13,742,988
Grand total		10,971,171	11,125,116	13,662,068	15,311,641	19,833,267

TABLE IV.—Annual Amount of Municipal Expenditures.

(unit of yen).

Items.	23rd year.	24th year.	25th year.	26th year.	27th year.
Offices	501,556	537,905	526,294	535,954	539,431
Assemblies	26,929	53,838	43,861	54,185	69,479
Public works	540,647	444,712	563,871	632,978	467,144
Education	571,095	865,083	902,165	1,163,437	1,314,974
Sanitary	113,957	99,915	108,708	154,298	176,331
Police	46,408	44,749	43,427	51,203	57,114
Industry	3,240	5,757	6,049	4,661	29,017
Public loans	102,069	207,475	288,908	439,128	497,763
Control of property ...	3,829	57,968	91,462	109,839	103,490
Taxes & other burdens.	1,682	3,265	2,347	2,794	3,730
Sundries	59,494	73,976	81,657	62,269	100,294
Funds and reserves ...	10,871	421	100,257	94,992	104,699
Subsidies and contributions	—	—	—	40	621
Others	79,111	580,263	1,226,031	1,192,326	1,698,599
Total	2,060,888	2,957,327	3,985,037	4,498,354	5,162,694

Items.	28th year.	29th year.	30th year.	31st year.	32nd year.
Offices	556,378	598,487	779,693	1,088,405	1,263,941
Assemblies	43,021	49,403	59,467	75,169	73,058
Public works	512,656	994,696	1,272,677	1,472,963	2,083,294
Education	1,338,289	1,699,334	2,354,009	2,639,947	3,354,027
Sanitary	353,857	303,233	399,690	446,467	653,608
Police	76,830	64,348	85,585	90,994	104,524
Industry	12,306	28,267	30,718	37,331	53,750
Public loans	628,460	996,292	2,480,128	1,481,642	1,656,745
Control of property ...	110,633	120,419	161,952	210,958	337,039
Taxes & other burdens.	3,745	5,796	75,605	289,858	400,328
Sundries	132,346	238,476	217,768	253,042	218,956
Funds and reserve ...	92,627	98,342	77,273	121,279	144,251
Subsides and contributions	4,943	938	2,760	2,129	36,708
Others	2,376,320	2,755,742	2,571,470	3,069,466	4,629,687
Total	6,242,411	7,953,773	10,568,795	11,279,650	15,010,516

TABLE V.—Annual Amount of Prefectural Revenue.

(unit of *yen*.)

Items.	25th year.	26th year.	27th year.	28th year.	29th year.
Land rate	8,409,156	8,904,420	9,023,498	9,523,782	12,204,844
Business tax	2,746,183	2,876,027	2,912,033	3,031,368	3,375,309
Miscellanious taxes	1,671,685	1,772,792	1,869,272	1,995,302	2,256,617
Rate on Business tax	—	—	—	—	—
House tax	3,186,331	3,157,645	3 342,061	3,474,070	4,993,134
Transferred from municipal estimates	—	—	—	—	105,070
Appropriated from cities, towns and villages	—	—	—	—	—
Income tax rate	—	—	—	—	—
Total	16,011,355	16,710,884	17,146,864	18,024,522	22,934,974
Sundries	10,958,162	15,103,524	12,417,622	9,710,790	18,098,235
Grand total	26,969,517	31,814,408	29,564,486	27,735 312	41,033,209

Items.	30th year.	31st year.	32nd year.	33rd year.	34th year.
Land rate	13,327,790	17,458,866	20,718,817	18,620,497	21,189,944
Business tax	1,895,888	2,123,415	2,291,587	2,250,784	2,418,737
Miscellanious taxes	3,486,296	4,097,252	4,619,667	4 712,618	5,604,885
Rate on Business tax	711,795	886,813	928,062	830,086	892,999
House tax	5,318,838	6,604,031	7,940,101	6,878,319	7,598,543
Transferred from municipal estimates	68,907	282,096	340,803	1,309,808	1,353,796
Appropriated from City, towns and villages	—	—	216,546	—	—
Income tax rate	—	—	1,435	8,106	13,261
Total	24,809,484	31,425,473	37,057,018	34,610 128	39,072,165
Sundries	21,229,710	16 187,123	19,214 261	10,313,847	10,847,752
Grand total	46,039,194	47,639,596	56,271,279	44,923,975	49,919,917

Items.	25th year.	26th year.	27th year.	28th year.	29th year
Police	4,702,037	4,732,562	4,750,260	4,943,067	5,070,201
Police works	7,305,504	7,320,626	8,827,577	7,448,422	11,415,155
Subsidies to above	2,541,265	3,382 101	3,113,767	2,114,706	2,933 497
Assemblies	348,632	312 095	301 995	301,490	346 462
Sanitary	379,840	425,694	527,891	998,296	808,398
Subsidies to above	—	—	—	58,382	126,570
Education	1 103,599	1,333,129	1,288 580	1,653,176	2,494 241
Subsidies to above	77,295	111,535	42,894	51,549	165,092

Items.	25th year.	26th year.	27th year.	28th year.	29th year.
Office expense, salaries and allowances relating to District offices	1,728,243	1,690,398	1,691,866	1,678,226	1,764,860
Industry	246,386	303,777	431,998	460,718	667,225
Subsidies to above	—	—	—	36,814	54,509
Collection of prefectural taxes...	315,110	324,830	362,670	377,218	442,670
Allowances to prefectural Offices	31,431	60,509	75,108	74,767	127,690
Share in river work expense.	—	—	—	—	293,300
Prefectural loans...	—	—	—	740 310	772,713
Sundries	4,519,648	4,505,645	4 587,974	3,865,501	4,237,894
Grand total	23,388,990	24,503,801	26,002,550	24,802,642	31,638 453

TABLE VI.—Annual Amount of Prefectural Expenditure.

(unit of *yen*.)

Items.	30th year.	31st year.	32nd year.	33rd year.	34th year.
Police	5,577,134	6,621,542	7,070,202	7,859,876	8,434,595
Police works	14,895,778	13,085,775	15,629,798	9,064,537	11,682,518
Subsidies to above	5,576,837	4,021,542	3,139,201	1,992,868	2,535,708
Assemblies	340,594	301,925	351,264	417,529	450,540
Sanitary	787,739	1,027,749	1,713,159	1,144,584	1,224,410
Subsidies to above	135,394	622 441	1,065,075	433,652	643,139
Education	2,788,026	4,317,481	6,278,373	8,125,046	9,931,556
Subsidies to above	206,616	158,593	266,698	272,300	441,006
Office expense, salaries and allowances relating to District offices	1,953,096	2,197,661	2,325,511	2 693 242	2,842,960
Industry	723,871	951,556	1,135,045	1,562,725	2,113,112
Subsidies to above	223,251	178,778	248,967	336,527	519,354
Collection of prefectural taxes...	495,135	591,256	656,967	716,161	761,894
Allowances to prefectural Offices	254,402	397,385	554,582	717,316	946,771
Share in river work expense.	293,300	293,300	295,300	295,300	864,655
Prefectural loans...	952,433	1,466,267	1,629,005	2,964,124	3,908,448
Sundries	4,843,621	5,486,470	6,090,037	6,327,775	2,591,292
Grand total	40,047,227	41,719,721	48,478,005	44,923,562	49,891,958

Note:—As the sum of 28,821 *yen* of Toyama-ken in the 32nd year could not be distributed among the respective items owing to the occurrence of fire, the sum was included in the grand total alone.

CHAPTER II.—Loans.

National Loans —Local Loans.

I. NATIONAL LOANS.

History:—As already described in the section of finance, administrative and all other national affairs underwent a radical change at the Restoration and many of the new measures were carried out with funds obtained by raising loans. The amount of loans thus raised early in the era has gone on increasing with the progress of the times, for the State had to adjust its finances, strengthen its armaments, and to devise measures calculated to improve and encourage the development of economic undertakings, the communication service, etc. The only instance in which loans were raised for other purposes was in connection with the South-western civil war and the Japan-China war. The Nine per cent. Sterling Foreign Loan raised at London in April 3rd year was the first national loan raised by Japan. This was followed by the floating of the Seven per cent. Sterling Foreign Loan. The former was devoted to laying railways between Tokyo and Yokohama and between Kobe and Osaka, while the latter was used for supplying funds to those "Shizoku" who had on their own accord surrendered their hereditary pensions and who were entering on a business career.

In March of the same year the "New" and "Old" Loan Regulations were enacted with the object of converting the debts incurred by the feudal princes into national debts, and bringing the financial affairs of the country into a state of uniformity. This loan was the first raised at home.

In the 7th year the Voluntarily Capitalized Pension Bonds were issued for granting some relief in the form either of cash or bonds to those "Shizoku" who had surrendered their pensions, in order to enable them to procure funds for engaging in business pursuits. The greater part of the cash required for this purpose came from

the proceeds of the Foreign Loans above described. In the 9th year, when the old pension system was entirely abolished, a regular system for comfounding the pensions with capitalized pension bonds was instituted. In the 11th year a similar favor of granting pension bonds was extended to Shinto priests who had, in consequence of the change in the administration of the Shinto temples, been deprived in the 4th year of their posts and of their means of subsistence.

It was natural that in accomplishing such a grand work as the Restoration the Government should have required an immense amount of money and that it should have been compelled to issue paper money to meet a deficit in the treasury. But this issue of paper money occasioned great financial disorder. To remedy this state of things, the Government promulgated in the 6th year the "Kinsatsu" Exchange Loan Bond Regulations, with the object of withdrawing from circulation paper money in exchange for the bonds, exchange to be made on application. In the 16th year the withdrawal was carried out on a larger scale than before, in order to bring paper money to par. The issue of the bonds in accordance with the "Kinsatsu" Exchange Loan Bonds was discontinued and instead the Unregistered "Kinsatsu" Exchange Bonds were issued. Coming to the 23rd year, with the object of redeeming 1-*yen* paper notes and notes of larger denomination, the Government borrowed from the Bank of Japan 22 million *yen* in the shape of convertible bank notes.

Meanwhile matters relating to the development of industry also received a due share of attention from the Government. In the 11th year the Government raised the Public Undertakings Loan to the amount of 12,500,000 *yen* and undertook the work of laying the Kyoto-Otsu Railway, the Tsuruga-Ogaki Railway, the construction of a new road over the Shimizu-goe pass, the drainage of Lake Inawashiro, the supply of water to Nasu plain, etc. Then in the 17th and 18th years the Nakasendo Railway Loan amounting to 20,000,000 *yen* was raised to connect Tokyo and Kyoto by means of a railway service through the Nakasendo route. This plan was subsequently abandoned, and part of the fund raised for the purpose was appropriated on account of the work of the Tokaidō Railway and other railways the speedy construction of which was necessary.

The deficit in the fund was met by raising in the 21st year the Railway Supplementary Loan. From the 26th fiscal year the Railway Loan has been raised several times, and the construction of important lines has been completed, with the result that this service has been brought to a state of great efficiency and usefulness.

The Hokkaidō Railway Loan was established in the 30th year, the loan to be floated according to the state of the market and as the progress of the work requires.

The outbreak of the South-western civil war in the 10th year involved big disbursements which could not be met out of the ordinary revenue. Fortunately the Fifteenth National Bank just started about that time had a supply of capital which was too great to be profitably manipulated, so that it asked to the Government to use part of its capital as a loan. The Government accepted this offer, and borrowed a sum of 15,000,000 *yen* as a war fund.

Between the 19th and 22nd years a Navy Loan amounting to 17,000,000 *yen* was raised with the object of bringing the Imperial fleet to a state of greater efficiency and making it more adequate to defend our expanded interests. The fund raised was used for establishing a number of admiralties, arsenals, building warships, and also for manufacturing torpedoes and ammunition of war.

Meanwhile as a result of the institutions of the State having been brought to a state of greater perfection and especially as a result of the proper development of organs of monetary circulation, the scale of rate of interest had began to fall, so that coming to the 19th year the interest for deposits stood at about 3 to 4 per cent. The national bonds bearing interest at the rate of 6 per cent. or over naturally began to rise above par. The time had therefore arrived for consolidating several kinds of loans that had formerly been raised at a higher rate of interest. Accordingly the Treasury promulgated in October of the 19th year the Consolidated Loan Bonds Regulations, with the object, on the one hand, of consolidating loans bearing a higher rate of interest and of reducing the expense of the Treasury as also of the burden of the people, and on the other of unifying the various kinds of loans. The loan bonds to be redeemed by this arrangement were the 6 per cent. "Kinsatsu" Exchange Loan Bonds, 6-per cent. Capitalized Pension

Bonds, 6-per cent. Public Undertaking Bonds, 6-per cent. Unregistered "Kinsatsu" Exchange Loan Bonds, 7-per cent. Nakasendō Railway Bonds, 7-per cent. Voluntairly Capitalized Loan Bonds, 7½-per cent. South-western War Loan, etc. All these loans aggregated over 173,010,000 *yen*. The regulation having been drawn up with the object of unifying all the different kinds of loans, they remain to this day as the fundamental provisions for regulating matters of loans.

In the 27th year some trouble in Korea culminated in the outbreak of war between this country and China. The war involved immense expenses which could hardly be met out of the ordinary revenue, and the Government was obliged, by promulgating an Urgency Imperial Ordinance, to float a loan and to contract other kinds of debts. The Imperial Diet that was convoked soon after approved of the measure of disbursing the war expense of 250,000,000 *yen* and of supplying that amount by means of domestic loans. In accordance with this programme the Government raised the War Loan and also got a loan from the Bank of Japan and procured the fund needed in replenishing the war chest. On the conclusion of peace with China in April 28th year, it was arranged for the convenience of both parties that the indemnity from China should be paid and received at London and in English pound sterling. The indemnity was set apart as a special account, so that it might be afterwards manipulated to greater advantage. At the same time this account led to the opening of a mutual loan arrangement between the Treasury and the Bank of Japan, with the result that a species of short-term national loans was brought into existence.

The termination of the war so glorious for the Empire and so conducive to the enhancement of its prestige before all the world was attended by a vast development in all spheres of activity. The result was that the Government decided to undertook several important measures calculated to develop our economic affairs and to supplement national armaments. With the consent of the Imperial Diet the Government made arrangements for improving the existing system of railways, constructing the Hokkaidō railway, establishing a steel foundry, expanding the telephone service, creating the tobacco monopoly, strengthening the national defence, etc. These measures

appeared in the shape of Public Undertakings Loan promulgated in the 29th year as Law No. 59.

The financial results of the Japan-China war were not confined to those enunciated above, for the annexation of Formosa to Japanese dominions necessitated the raising of a loan for exploiting the resources of the island. This loan is the Formosan Public Undertaking Loan issued in the 32nd year in the shape of Law No. 75.

In the 30th year, by Law No. 50 the Law for readjusting Capitalized Pension Bonds was promulgated. The object of the law is the adjustment of the capitalized pensions, and in order to carry it into effect the issue of a loan is required. However the various matters connected with this loan being yet under investigation, some time must expire before the loan is to be raised.

Besides those mentioned above there are some contract affairs which involve disbursements not covered by Budgets, and for which the consent of the Diet has been secured. One of them relates to the procuring of the North China Affair Fund (34th fiscal year), another to a loan to be transferred to the Iron Foundry Working Fund (35th year), while there are also the Treasury Bonds Regulations issued in the 17th year and Law No. 16 issued in the 27th year for raising loans. These two latter legislative measures extend to the Treasury an important expedient of procuring funds with which to meet the prescribed outlays originally arranged to be paid with the proceeds of the year's instalment of loans. For it frequently happens that the Treasury is obliged to fulfill payment while the proceeds from the loan are not yet forthcoming. By virtue of this expedient the Treasury is enabled to raise short-termed loans and thus to meet the necessity of prescribed outlays.

In consequence of the great discretion exercised by the Treasury in adjusting the State finances and as the Treasury, in pursuance of that judicious policy, has converted and consolidated loans bearing higher rates of interest, of the 21 different loans heretofore raised by the Government (Treasury Bonds and short-termed loans excepted), 11 have already been redeemed or converted and consolidated, and there remain at present 10 loans which the Empire has yet to redeem.

The redemption of the loans was previously been made by

redeeming the prescribed instalment for such of the loans whose redemption was regulated in that way; also by converting and consolidating old loans, and also by redeeming by the drawing of lots a certain amount of bonds. Later the Government, with the consent of the Diet, made an arrangement for purchasing, whenever the state of the market favored such purchases, loan bonds, and of redeeming them by this process. This was duly provided by Law No. 5 issued in the 29th year. This purchasing method and the lot-drawing method have since been availed of for redeeming loan bonds, and for adjusting State finances.

The history and all the circumstances relating to the origin of national loans having been described in this section, it remains for us to give some brief account of the items of those loans with their respective amounts, the classification of the loans, and some other financial subjects.

ITEMS OF NATIONAL LOANS:—The loans heretofore raised by the Meiji Government, excepting the Treasury Bonds and short-termed loans, number 21, to which one loan to be newly raised some time in future to be added, making in all 22 items, as appended in the following table:—

EXISTING LOANS.

Name.	Date of issue of regulations or conclusion of contract.	Rate of interest.	Months for paying interest.
Old Loan	Mar. 25, 6th.	No interest.	—
Captalized Pension Loans	Aug. 5, 9th.	5%, 6%, 7%, 10%.	May and Nov.
Navy Loan	June 12, 19th.	5%.	—
Consolidated Loan	Oct. 16, 19th.	5%.	June and Dec.
Loan for redeeming paper money	Aug. 9, 23rd.	No interest.	—
Railway Loans	June 20, 25th.	5%.	Mar. and Sept.
	Apl. 19, 32nd.	4%.	June and Dec.
War Loans	Aug. 15, 27th. / Oct. 23, 27th. / Mar. 2, 28th.	5%.	June and Dec.
Public Undertakings Loans	Mar. 29, 29th.	5%.	Mar. and Sept.
	Apl. 19, 32nd.	4%.	June and Dec.
Hokkaidō Railway Loan	May 13, 29th.	5%.	Mar. and Sept.
	Apl. 19, 32nd.	4%.	June and Dec.
Formosan Public Undertaking Loan	Mar. 20, 32nd.	5%.	June and Dec.

LOANS REDEEMED.

Name.	Date of issue of regulations or conclusion of contract.	Rate of interest.	Months for paying interest.
Foreign Loans	9% Apl. 23, 3rd. 7% Jan. 13, 6th.	9%. 7%.	Feb. and Aug. Jan. and July.
New Loan	Mar. 25, 6th.	4%.	June and Dec.
Kinsatsu Exchange Loan ...	Mar. 30, 6th.	6%.	May and Nov.
Capitalized Pension Loan ...	Mar. 28, 7th.	8%.	Nov.
Pro-rata Pension Bonds for the former Shinto Priests	Mar. 13, 10th.	8%.	Nov.
South-western War Loan ...	May 22, 10th.	7.5%.	May and Nov.
Public Undertaking Loan ...	May 1, 11th.	6%.	June and Dec.
Nakasendō Railway Loan ...	Dec. 28, 16th.	7%.	June and Dec.
Unregistered Kinsatsu Exchange Loan	Dec. 28, 16th.	6%.	May and Nov.
Railway Supplementary Loan.	Jan. 28, 22nd.	5%.	June and Dec.

TO BE RAISED IN FUTURE.

Capitalized Pension Adjustment Loan	Oct. 29 30th. Mar. 22, 32nd.	5%.	Mar. and Sept.

EXISTING LOANS.

Name.	Date of issue.	Term for leaving Loans unredeemed.	Terms of Redemption. 1st payment.	Terms of Redemption. last payment.
Old Loan	5th year.	—	5th year.	54th year.
Capitalized Pension Loans ...	10th year.	5 years.	15th year.	39th year.
Navy Loan	19th—22nd year.	5 years.	24th year.	56th year.
Consolidated Loan	20th—30th year.	5 years.	25th year.	84th year.
Loan for redeeming paper money	23rd year.	3 years.	26th year.	45th year.
Railway Loans	26th—35th year. 32rd year.	5 years. 10 years.	31st year. 42nd year.	89th year. 86th year.
War Loans	28th—33rd year.	5 years.	33rd year.	87th year.
Public Undertakings Loans ...	30th—34th year. 32nd year.	5 years. 10 years.	35th year. 42nd year.	88th year. 86th year.
Hokkaidō Railway Loan ...	31st—34th year. 32nd year.	5 years. 10 years.	36th year. 42nd year.	88th year. 86th year.
Formosan Public Undertaking Loan	33rd—35th year.	10 years.	—	79th year.

LOANS REDEEMED.

Foreign Loans	9% 3rd year. 7% 6th year.	3 years. 2 years.	6th year. 8th year.	15th year. 30th year.
New Loan	5th year.	3 years.	8th year.	29th year.
Kinsatsu Exchange Loan ...	6th—16th year.	3 years.	9th year.	30th year.
Capitalized Pension Loan ...	7th—9th year.	2 years.	9th year.	17th year.

Name.	Date of issue.	Term for leaving Loans unredeemed.	Terms of Redemption. 1st payment.	last payment.
Pro-rata Pension Bonds for the former Shinto Priests	11th year.	2 years.	13th year.	19th year.
South-western War Loan ...	10th—11th year.	Until 29th year.	—	30th year.
Public Undertaking Loan ...	11th year.	2 years.	13th year.	35th year.
Nakasendō Railway Loan ...	17th—18th year.	5 years.	22nd year.	47th year.
Unregistered Kinsatsu Exchange Loan	17th - 19th year.	5 years.	22nd year.	53rd year.
Railway Supplementary Loan	22nd year.	5 years.	27th year.	76th year.
TO BE RAISED IN FUTURE.				
Capitalized Pension Adjustment Loan	—	5 years.	—	—

The items of short-term loans, that is to say, the Exchequer bonds and temporary loans are given below. Of these items, those that are remaining are Exchequer bonds, temporary loans contracted for adjusting balance of receipts and disbursements of Exchequer, the loan appropriated on account of the Formosan Public Undertaking Fund, and the loan on account of the North China Affair. There is only one loan to be contracted in future, according to the prescribed programme, and that is a loan appropriated on account of the Iron Foundry Working Fund. The particulars are as appended in the table.

EXCHEQUER BONDS.

Date of issue of regulations.	Cause of loans.	Regulation interest.	Actual interest. per annum.	per diem.
Sept. 20, 17th year.	——	Interest-bearing or with discount (rate fixed by the Finance Minister).	4—7½%	discount 1.7—1.9 *sen.*

TEMPORARY LOANS.

June 11th, 27th year.	For adjusting Exchequer receipts and payments.	Interest-bearing.	1—10%	2.2—2.4 *sen.*
Oct. 23rd, 27th year.	Japan-China war.	Not more than 6%.	5%.	—
Mar. 2nd, 28th year.	Do.	Do.	6%.	—
Mar. 4th, 29th pear.	Mutual accommodation between Exchequer cash account and Indemnity deposits.	Rate to be fixed by the Finance Minister.	2% at first more interest afterward.	—
Mar. 20th, 32nd year.	Transferred toward Formosan Undertaking Fund.	Rate to be fixed by Government.	7%.	—

Date of issue of regulations.	Cause of loans.	Regulation interest.	Actual interest. per annum.	Actual interest. per diem.
——	Transferred toward North China affair Fund.	Not more than 8%.	8%.	—
——	For supplementing Iron Foundry working Fund.	Not more than 7%.	—	—

Amount of the Debts :—As mentioned in the preceding paragraph, the first loan ever raised by the Meiji Government was the 9 per cent. foreign loan, while in respect to redemption the repayment in the 5th year of the first instalment of the Old Loan was the first. From that time forward the raising of new loans was generally alternated by the redemption of the old, and though the amount remaining unpaid necessarily differed according to the times. In general it grew larger with the lapse of time. The Capitalized Pension Loan raised in the 10th year amounted to an immense sum, as in it was involved a momentous change in the social organization of the country. The sum was no less than 173,900,000 *yen* in round numbers, and the incurring of this enormous loan raised at one bound the total sum of the State liabilities. The Consolidated Public Loan raised in accordance with the Regulations promulgated in the 19th year was still larger, as it amounted to 175,000,000 *yen*. However as this loan was raised with the primary object of converting and consolidating loans bearing higher rates of interest, the flotation of this loan, nominally stupendous as it was, did not materially alter the sum total of the State liabilities. The outbreak of the Japan-China War in the 27th year and the necessity it occasioned of the war loan and temporary loans swelled all at once the loans of the State, and this tendency was further accelerated by the appearance of the Public Undertakings Loan required by the various post-bellum measures. At the end of the 34th fiscal year the national debts reached the figures of no less than 558,526,140 *yen*. Appended are the tables demonstrating the viscissitudes of the national loans since the first loan of the 9-per cent. foreign loan was raised.

Year.	Amount of loan.	Amount redeemed.	Amount remaining at the end of the year.	Population.	Debt per capita.
3rd-4th ...	4,880,000.000	—	4,880,000.000	33,110,825	.147
5th	23,395.550.000	219,454.500	28,056,095.500	33,300,675	.875
6th	13,292,200.000	707,454.500	40,640,841.000	33,625,678	1.209
7th	6 986,250.000	707,454 500	46,919,636.500	33.997,449	1.380
8th	10,230.550 000	1,339.994 500	55,810,192.000	34,338,404	1.625
9th	7 400.000	1,890 248.500	53.927,343 500	34,628,328	1.557
10th	183,388,900.000	975.854 500	236,340 389.000	34,898,540	6.772
11th	18,348.050.000	2 324,273.500	252 364,165.500	35.768.584	7.055
12th	—	2,165,406.500	250,198,759.000	35 929,060	6.964
13th	3,002,650.000	3.863 178 500	249,338,230.000	36,358,994	6.858
14th	627.550 000	3,838,239.500	246,127,541.000	36,700 118	6.706
15th	427.950.000	6,044,207.500	240,511,283.500	37,017,303	6 497
16th	372.550.000	13,220,944.500	227,662,889.000	37 451,764	6.079
17th	16,414 600.000	4.215.575.500	239,861,913.500	37,868.987	6.334
18th	6,582,700.000	5,188,626.500	241,255,987.000	38,151,217	6.324
19th	41.682.600.000	25,456 272.500	257,482.314.500	38,507,177	6.687
20th	74.554.450 000	66,644 182 500	265,392,582.000	39,069,691	6.793
21st	48,872,900.000	54,196,662.500	260,068,819.500	39,607,234	6.566
22nd	31 166,850 000	31,182,553.500	260,053,216.000	40,072,020	6.490
23rd	25 347,450 000	10,163,996.500	275,236,669 500	40,453,461	6.804
24th	19,462 450.000	20,073 110.500	274 626,009.000	40,719,677	6.744
25th	40,850.350 000	37,582,047.500	277,894,311.500	41,089 940	6 763
26th	18.987,900.000	30,067,360.500	266,814,851 000	41,388 313	6.447
27th	32,500,000.000	16,078,797 500	283,336,053.500	41,810,202	6.774
28th	144,234,000.000	35.346,158.500	392,123,895.000	42,270,620	9.276
29th	105,928,875.000	70,930,835.500	427,121,934.500	42,708,264	10.001
30th	57,453.378 000	72,791,052.500	411,784,260.000	45.684,216	9 014
31st	61.123.350.000	59,625,736.500	413,281,873.500	46 228,120	8.940
32nd	100,365 750 000	10,446,974.500	503,200,649 000	46 881,762	10.733
33rd	31,125.400.000	7,661,874.500	526,664,194.500	46,881,762	11.234
34th	107 710.800.000	60,409,954.500	573,965,040.000	46,881,762	12.243
35th	27.904.600.000	33,344,500.000	568,526,140.000	46,881,762	12.221

The loans given in the foregoing table sum up to 1,257,-228,103 *yen*, while the amount redeemed totalled 688,701,963 *yen* (the total amount of the loans divided by 32, the number of years intervening between April 3rd year and March 35th year, the average of loan contracted per year amounts to 39,288,378 *yen* and the redemption made averages 21,521,936 *yen* approxi-

mately). Hence the amount remaining unredeemed at the end of March 31st, 35th year was 568,526,140 *yen*. The unredeemed amount distributed among the different loans, the following table is obtained :—

National Debts.	Amount raised.	Amount redeemed.	Amount remaining unredeemed.
9-per cent. Foreign Loan	4,880,000	4,880,000	—
7-per cent. Foreign Loan	11,712,000	11,712,000	—
New Loan	12,422,825	12,422,825	—
Old Loan	10,972,725	6,583,635	4,389,090
Kinsatsu Exchange Loan	6,669,250	6,669,250	—
Voluntairly Capitalized Pension Loan... ...	16,565,850	16,565,850	—
Capitalized Pension Loan	173,902,900	148,474,250	25,428,650
Pro rate Capitalized Pension for loan former Shinto priests	334,050	334,050	—
Public Undertaking Loan	12,500,000	12,500,000	—
Nakasendo Railway Loan	20,000,000	20,000,000	—
Unregistered Kinsatsu Exchange Loan ...	7,929,900	7,929,900	—
Navy Loan	17,000,000	8,203,400	8,796,600
Consolidated Public Loan	175,000,000	6,306,400	168,693,600
Railway Supplementary Loan	2,000,000	2,000,000	—
Railway Loan...	58,559,500	13,275,450	45,284,050
War Loan	124,920,750	8,339,300	116,581,450
Public Undertaking Loan	131,451,150	7,744,450	123,706,700
Hokkaidō Railway Loan	3,912,000	—	3,912,000
Formosan Public Undertaking Loan	5,434,000	—	5,434,000
Total	796,166,900	293,940,760	502,226,140
Exchange Bonds	114,866,500	104,866,500	10,000,000
South-western War Loan	15,000,000	15,000,000	—
Paper-Notes Redemption Fund Loan... ...	22,000,000	—	22,000,000
Temporary Loans	309,194,703	274,894,703	34,300,000
Total	346,194,703	289,894,703	56,300,000
Grand total...	1,257,288,103	688,701,963	568,526,140

On examining the amount of interest paid for the national debts that are bearing interest, the rate of interest shows a gradual falling off, but the aggregate amount paid on this account has increased to a greater or less extent, this increase being especially striking in the 10th year.

Year.	Amount of interest-bearing debts remaining at the end of year.	Yearly amount of interest.	Interest per 100 *yen* of unredeemed debts.	Population.	Interest per capita.
	yen.	*yen.*	*yen.*	*yen.*	*y-n.*
4th ...	4,880,000.000	439,200.000	9.000	33,110,825	.013
5th ...	17,302,825.000	936,113 000	5.410	33,300,675	.028
6th ...	30,107,024.000	1,806,845 000	6.001	33,625,678	.054
7th ...	36,605,275.000	2,309,158.000	6.308	33,997,449	.068
8th ...	45,715,285.000	2,050,853.200	6.674	34,338,404	.089
9th ...	44,051,891.000	2,934,057.120	6.660	34,628,328	.085
10th ...	226,684,391.000	14 917,887.220	6.581	34,898,540	.427
11th ...	242,927,622.000	15,809,583.040	6.508	35,768,584	.442
12th ...	240,981,670.000	15,658 136.400	6.498	35,929,060	.436
13th ...	240,340,590.000	15,558,088.720	6.473	36,358,994	.428
14th ...	237,349,361.000	15,315.594.520	6.453	36,700,118	.417
15th ...	241,952,558.000	14,898,672.660	6.158	37,017,302	.402
16th ...	229,323,618.000	14,309,761.310	6.240	37,451,764	.382
17th ...	231,742,097.000	15,105,274.790	6.518	37,868,987	.399
18th ...	233,355 625 000	15,111,262.200	6.476	38,151,217	.396
19th ...	249,801,407.000	15,530,584.940	6.217	38,507,177	.403
20th ...	257,931,129.000	15,370,909.780	.959	39,069,691	.393
21st ...	252,826,821.000	14,726,657.670	5.825	39,607,234	.372
22nd ...	253,030,672.000	14,285,742,540	5.646	40,072,020	.357
33rd ...	246,433,580.000	13,758,211.400	5.583	40,453,461	.340
24th ...	246,042,374.000	13,342,664.980	5.423	40,718,677	.328
25th ...	249,530,131.000	12,966,631.820	5.196	41,089.940	.316
26th ...	238,670,125.000	12,157,348.100	5.094	41,388,313	.294
27th ...	255,310,782.000	13,116,248.840	5.137	41,810,202	.314
28th ...	364,418,078.000	18,656,661.060	5.120	42,270 620	.441
29th ...	399,635,572.000	18,586,453.640	4.651	42,708.264	.435
30th ...	377,686,220.000	18,884,311.000	5.000	45,684.216	.413
31st ...	386,234,420.000	19,311,721.000	5.000	46,228,120	.418
32nd ...	476,372,650.000	22,892,332.500	4.806	46,881,762	.488
33rd ...	500,055,650.000	24,345,482.500	4.869	46,881,762	.519
34th ...	547,575,950.000	28,244,597.500	5.158	46,881,762	.602

Classification of National Debts :—The national debts incurred by the Government since the beginning of the era amount to a large sum, as mentioned in the preceding parts. But it must not be forgotten that all those debts have generally been occasioned by the reorganization of the national institutions, the adjustment of the finances, and the development of civil and military affairs. None of them has been engendered by deficit in the ordinary revenue of the State. It

is true some debts have been contracted by war, but their sum is comparatively small. This point will be made clear by the following table in which the debts, (Exchequer bonds and temporary loans excluded), are classified according to the object for which they were raised.

Object of debt.		Name of Loans.	Amount raised.	Amount redeemed.	Amount not yet redeemed.
Reorganization of public institutions.	Feudal governments' debts consolidated.	New Loan	12,422,825	12,422,825	—
		Old Loan	10,972,725	6,583,635	4,389,090
		Total	23,395,550	19,006,460	4,389,090
	Feudal pensions capitalized.	7 per cent. Foreign Loan ...	11,712,000	11,712,000	—
		Capitalized Pension Loan ...	16,565,850	16,565,850	—
		Pension Loan	173,902,900	148,474,250	25,428,650
		The old Shintō Priest Pension Loan	334,050	334,050	—
		Total	202,514,800	177,086,150	25,428,650
		Grand total	225,910,350	196,092,610	29,817,740
Economic Undertakings.	Railway construction.	9 per cent. Foreign Loan ...	4,880,000	4,880,000	—
		Public Works Loan	5,694,300	5,694,300	—
		Nakasendō Railway Loan...	20,000,000	20,000,000	—
		Railway Sup'tary Loan ...	2,000,000	2,000,000	—
		Railway Loan	58,559,500	13,275,450	45,284,050
		Public Undertaking Loan ...	21,831,400	1,286,200	20,545,200
		Hokkaidō Railway Loan ...	3,912,000	—	3,912,000
		Total	116,877,200	47,135,850	69,741,250
Harbor-works, artificial canal, road, mining, telephone, etc.		Public Works Loan	6,805,700	6,805,700	—
		Public Undertaking Loan...	28,002,300	1,649,750	26,352,550
		Total	34,808,000	8,455,450	26,352,550
		Grand total	151,685,200	55,591,400	96,093,800
Military Affairs.	Expansion of armament.	Naval Loan	17,000,000	8,203,400	8,796,600
		Public Works Loan	70,501,000	4,153,550	66,347,450
		Total	87,501,000	12,356,950	75,144,050
	War.	Civil War Loan...	15,000,000	15,000,000	—
		War Loans...	124,920,750	8,339,300	116,581,450
		Total	139,920,750	212,339,300	116,581,450
		Grand total	227,421,750	215,696,250	119,725,500
Financial adjustment.	Redemption of paper money.	Kinsatsu Exchange Loan ...	6,669,250	6,669,250	—
		Unregistered Kinsatsu Exchange Loan	7,929,900	7,929,900	—
		Redemption of Paper Money	22,000,000	—	22,000,000
		Total	36,599,150	14,599,150	22,000,000
	Consolidat'n of old loans.	Consolidated Loan	175,000,000	6,306,400	168,693,600
	Tobacco monopoly.	Public Undertaking Loan...	11,116,450	654,950	10,461,500
		Total	222,715,600	21,560,500	201,155,100

Object of debt.	Name of Loans.	Amount raised.	Amount redeemed.	Amount not yet redeemed.
Exploitation of New territory.	Railway	3,569,800	—	3,569,800
	Land Surveying...	674,300	—	674,300
	Harbor-work	773,450	—	773,450
	Construction of Gov.-offices.	416,450	—	416,450
	Total	5,434,000	—	5,434,000
	Grand total	833,166,900	308,940,760	524,226,140

RATIO TO THE WHOLE SUM.

Object of debt.		Name of Loans.	Amount raised.	Amount redeemed.	Amount not yet redeemed.
Reorganization of public institutions.	Feudal governments' debts consolidated.	New Loan	.0149	.0402	—
		Old Loan	.0132	.0213	.0084
		Total	.0281	.0615	.0084
	Feudal pensions capitalized.	7 per cent. Foreign Loan ...	.0141	.0379	—
		Capitalized Pension Loan...	.0199	.0536	—
		Pension Loan	.2087	.4806	.0485
		The old Shintō Priest Pension Loan	.0004	.0011	—
		Total	.2431	.5732	.0485
		Grand total	.2711	.6347	.0569
Economic Undertakings.		9 per cent. Foreign Loan ...	.0059	.0158	—
	Railway construction.	Public Works Loan	.0068	.0184	—
		Nakasendō Railway Loan...	.0240	.0647	—
		Railway Sup'tary Loan ...	0024	.0065	—
		Railway Loan	.0703	.0430	.0864
		Public Undertaking Loan...	.0262	.0042	.0392
		Hokkaidō Railway Loan ...	.0047	—	.0075
		Total	.1403	.1526	.1330
Harbor-works, artificial canal, road, mining, telephone, etc.		Public Works Loan	.0082	.0220	—
		Public Undertaking Loan...	.0336	.0053	.0503
		Total	.0418	.0274	.0503
		Grand total	.1821	.1799	.1833
Military Affairs.	Expansion of armament.	Naval Loan...	.0204	.0266	.0168
		Public Works Loan	.0846	.0134	.1266
		Total	.1050	.0400	.1433
	War.	Civil War Loan...	.0180	.0486	—
		War Loans...	.1499	.0270	.2224
		Total	.1679	.0755	.2224
		Grand total	.2730	.1155	.3657

Object of debt.		Name of Loans.	Amount raised.	Amount redeemed.	Amount not yet redeemed.
Financial adjustment.	Redemption of paper money.	Kinsatsu Exchange Loan ...	.0080	.0216	—
		Unregistered Kinsatsu Exchange Loan	.0095	.0257	—
		Redemption of Paper Money	.0264	—	.0420
		Total	.0439	.0423	.0420
	Consolidat'n of old loans.	Consolidated Loan	.2100	.0204	.3218
	Tobacco monopoly.	Public Undertaking Loan...	.0133	.0021	.0200
		Total	.2673	.0698	.3837
Exploitation of New territory.		Railway	.0043	—	.0068
		Land surveying	.0008	—	.0013
		Harbor-work	.0009	—	.0015
		Construction of Gov.-offices..	.0005	—	.0008
		Total	.0965	—	.0101
		Grand Total	—	—	—

It will be seen from the forgoing table that the national debts incurred for military purposes number four, the amount of their loans corresponding to about 27.3 per cent. of the whole sum (the debt incurred for civil wars corresponds to only 16.8 per cent. approximately), and this item therefore is the largest; then come the debts incurred for the reorganization of public institutions. These debts number six and their aggregate amount corresponds to about 27.1 per cent. of the whole sum, and therefore almost equal to the item above mentioned. The five debts resulting from the financial adjustment measures correspond to about 26.7 per cent., a ratio differing much from the preceding two. The debts which economic undertakings occasioned are the largest as to number, though their aggregate sum does not exceed about 18.2 per cent. of the whole amount. There is only loan raised for the purpose of exploiting the new territory of the Empire, and its amount does not exceed .7 per cent., and is therefore the smallest item of all. The two items of economic undertaking and the exploitation of the new territory are, however, destined to grow larger with the lapse of time. Coming to the ratio which each item of redemption bears to the aggregate amount redeemed, that ratio is in the case of the financial adjustment amount about 38.4 per cent., in the case of the military item about 36.6 per cent.,

economic undertakings about 18.3 per cent., reorganization of public institutions about 5.7 per cent., and the exploitation of the new territory about 1 per cent.

The amount of loans, of redemption, and of the sum not yet redeemed being classified according to foreign and domestic debts, the following figures are obtained:—

Kind.	Amount of loan.	Amount redeemed.	Amount not yet redeemed.	Ratio to the whole sum. Amount of loan.	Amount redeemed.	Amount not yet redeemed.
	yen.	*yen.*	*yen.*			
Domestic ...	718,944,900	292,348,760	426,596,140	0.8629	0.9463	0.8138
Foreign	114,220,000	16,592,000	97,630,000	0.1371	0.0537	0.1862
Total	833,166,900	308,490,760	524,226,000	—	—	—

Further classification being made into those bearing interest and those not bearing interest and also into those that have issued bonds and those that have not, the following comparison is obtained :—

INTEREST-BEARING.

Kind.	Amount of loan.	Amount redeemed.	Amount not yet redeemed.	Ratio to the whole sum. Amount of loan.	Amount redeemed.	Amount not yet redeemed.
Those that have issued bonds (public loans)	785,194,175	287,357,125	497,837,050	0.9424	0.9310	0.9497
Those that have not issued bonds (temporary loans)	15,000,000	15,000,000	—	0.0180	0.0486	—
Total	800,194,175	302,357,105	497,837,050	0.9604	0.9787	0.9497

NOT BEARING INTEREST.

Those that have issued bonds (public loans)	10,972,725	6,583,633	4,389,090	0.0132	0.0212	0.0084
Those that have not issued bonds (temporary loans)	22,000,000	—	22,000,000	0.0264	—	0.0420
Total	32,972,725	6,583,635	26,389,090	0.0396	0.0213	0.0503

TOTAL.

Those that have issued bonds (public loans)	796,166,900	293,940,760	502,226,140	0.9556	0.9514	0.9580
Those that have not issued bonds (temporary loans)	37,000,000	15,000,000	22,000,000	0.0444	0.0486	0.0420
Total	833,166,900	308,940,760	524,226,140	—	—	—

Lastly the debts shall be classified according to the presence or absence of interest and according to the rate of interest.

%	Name of loans.	Amount of loans.	Amount redeemed.	Amount not yet redeemed.
10	Voluntary Pension Loan	9,244,005	9,244,005	—
9	9-per cent. Foreign Loan	4,880,000	4,880,000	—
8	Capitalized Pension Loan...	16,565,850	16,565,850	—
	Old Shinto Priests Pension Loan ...	334,050	334,050	—
	Total	16,899,900	16,899,900	—
7½	Civil War Loan	10,000,000	10,000,000	—
7	7-per cent. Foreign Loan	11,712,000	11,712,000	—
	Capitalized Pension Loan	108,242,785	108,246,785	—
	Nakasendō Railway Loan...	20,000,000	20,000,000	—
	Total	139,954,785	139,954,785	—
6	Kinsatsu Exchange Loan	6,669,250	6,669,250	—
	Capitalized Pension Loan	25,003,705	25,003,705	—
	Public works Loan	12,500,000	12,500,000	—
	Unregistered Kinsatsu Exchange Loan	7,929,900	7,927,900	—
	Total	52,102,855	52,102,855	—
5	Capitalized Pension Loan...	31,412,405	5,983,755	25,428,650
	Civil War Loan	5,000,000	5,000,000	—
	Naval Loan	17,000,000	8,203,400	8,796,600
	Consolidated Loan	175,000,000	6,306,400	168,693,600
	Railway supplementary Loan	2,000,000	2,000,000	—
	Railway Loan	40,981,750	13,275,450	27,706,300
	War Loan	124,920,750	8,339,300	116,581,450
	Public Undertaking Loan	53,398,900	7,744,450	45,654,450
	Hokkaidō Railway Loan	1,912,000	—	1,912,000
	Formosan Undertaking Loan	5,434,000	—	5,434,000
	Total	457,059,805	56,852 755	40,207,050
4	New Loan	12,422,825	12,422,825	—
	Railway Loan	17,577,750	—	17,577,760
	Public Undertaking Loan	78,052,250	—	78,052,250
	Hokkaidō Railway Loan	2,000,000	—	2,000,000
	Total	110,052,725	12,422,825	97,630,000
No interest	Old Loan	10,972,635	6,583,635	4,389,090
	Paper Money Redemption Loan ...	22,000,000	—	22,000,000
	Total	35,972,735	6,583,635	26,389,090
	Grand total	835,166,000	308,940,760	524,226,140

PERCENTAGE TO THE TOTAL SUM.

%	Name of loans.	Amount of loans.	Amount redeemed.	Amount not yet redeemed.
10	Voluntary Pension Loan	0.0111	0.0299	—
9	9-per cent. Foreign Loan	0.0059	0.0158	—
8	Capitalized Pension Loan...	0.0199	0.0536	—
	Old Shinto Priests Pension Loan ...	0.0004	0.0011	—
	Total	0.0203	0.0547	—
7½	Civil War Loan	0.0120	0.0324	—
7	7-per cent. Foreign Loan	0.0141	0.0379	—
	Capitalized Pension Loan	0.1299	0.3504	—
	Nakasendō Railway Loan...	0.2240	0.0647	—
	Total	0.1680	0.4550	—
6	Kinsatsu Exchange Loan	0.0080	0.0216	—
	Capitalized Pension Loan	0.0300	0.0809	—
	Public works Loan	0.0150	0.0405	—
	Unregistered Kinsatsu Exchange Loan	0.0095	0.0267	—
	Total	0.0625	0.1687	—
5	Capitalized Pension Loan...	0 0377	0.0194	0 0485
	Civil War Loan	0.0060	0.0162	—
	Naval Loan	0.0204	0.0266	0.0168
	Consolidated Loan	0.2100	0.0204	0.3218
	Railway supplementary Loan	0.0024	0.0065	—
	Railway loan	0.0492	0.0430	0.0529
	War Loan	0.1499	0.0270	0.2224
	Public Undertaking Loan	0.0641	0.0251	0.0871
	Hokkaidō Railway Loan	0.0025	—	0.0036
	Formosan Undertaking Loan	0.0065	—	0.0104
	Total	0.5486	0.1840	0.7634
4	New Loan	0.0149	0.0402	—
	Railway Loan	0.0211	—	0.0325
	Public Undertaking Loan...	0.0937	—	0.1489
	Hokkaidō Railway Loan	0.0024	—	0.0038
	Total	0.1321	0.0402	0.1862
No interest	Old Loan	0.0135	0.0212	0.0084
	Paper money Redemption Loan ...	0.0264	—	0.0410
	Total	0.0396	0.0213	0.0503

Note :—That portion of the South-western Civil War Loan which had been paid off when the rate of interest was revised in the 16th year was included in the item of the old rate of interest, and the remainder in that of the new rate.

II. LOCAL DEBTS.

As already mentioned, the debts contracted by the feudal princes were converted into the public loans of the Imperial Government and were thus brought under a uniform system. For a considerable period from the advent of the Imperial regime local loans were practically non-existent, nor were there any regular rules in force to regulate this branch of local finance. It was as late as the 23rd year, when the local Government system had been completed, that regular provisions relating to local loans were enacted for the first time.

According to the provisions now in force, the prefectural and communal corporations are allowed to raise loans only for the purpose of redeeming older debts or when it is impossible to meet from the ordinary revenue extraordinary disbursements occasioned by natural calamities or similar occurrences of an unavoidable nature or by undertakings judged to confer a permanent benefit on the corporations. But a loan cannot be raised unless the details relating to it have been voted by the legislative organ of the corporation and unless such decision has been approved by the Ministers of Home Affairs and of Finance. However this restrictive provision may not apply to short-termed loans redeemable in not more than three years.

Though local loans are subject to such restrictions, the development of the self-government system and the expansion of local expenditure occasion disbursements which can not be easily met out of the ordinary revenue. Then again the frequent occurrences of calamities and disasters have further obliged the prefectures and corporative bodies to resort to loan expedients, and the result has been that the local loans have attained enormous proportions. The supervising authorities are exercising the utmost care to put a judicious check on this tendency.

STATISTICS RELATING TO LOCAL LOANS.

TABLE I.—Existing Amount of Local Loans.

At the end of year.	Loans of Prefectures.	Loans of Districts.	Loans of cities.	Loans of Towns and village.
	yen.	*yen.*	*yen.*	*yen.*
23rd	570,301	—	150,000	—
24th	1,263,481	—	863,112	1 652
25th	1,295,155	—	2,961,419	16,609
26th	1,529,507	—	7,501,644	19,232
27th	2,281,511	3,000	7,529,760	120,574
28th	2,209,945	2,500	7,820,960	128,241
29th	2,204,854	6,200	8,019,596	163,173
30th	4,500,149	21,479	8,732,123	236,921
31st	7,885,203	45,729	11,501,480	383,386
32nd	8,672,641	62,646	14,676,755	491,949
33rd	9,719,984	135,613	18,889,033	829,498
34th	10,379,695	339,348	19,263,663	1,514,455

At the end of year.	Loans of local Associations.	Total.	Local Loans redeemable within 3 years.	Grand total.
	yen.	*yen.*	*yen.*	*yen.*
23rd	—	720,302	—	720,302
24th	—	2,128,245	—	2,128,245
25th	6 508	4,279,692	—	4,279,692
26th	43,418	9,093,801	—	9,093,801
27th	126,408	10,061,253	—	10,061,253
28th	138,289	10,299,934	—	10,299,934
29th	124,589	10,518,414	—	10,518,414
30th	247,489	13,738,162	2,614,653	16,352,814
31st	448,682	20,264,481	3,219,517	23,483,997
32nd	724 308	24,628,300	3,629,905	28,258,204
33rd	1,195,345	30,769,473	5,010,448	35,779,921
34th	1,687,674	33,187,806	7,520,166	40,707,972

TABLE II.—Aggregate Amount of Local Loans.

	Total of existing amount.	Increase compared with preceding year.	Rate of increase.
	yen.	*yen.*	
23rd	720,301	—	—
24th	2,128,245	1,407,943	1.95
25th	4,279,692	2,151,447	1.011
26th	9,093,801	4,814,109	1.125
27th	10,061,253	967,451	.106

	Total of existing amount.	Increase compared with preceding year.	Rate of increase.
	yen.	*yen.*	
28th	10,299,934	238,681	.024
29th	10 518,414	218,480	.021
30th	16,352,814	5,834,400	.555
31st	23,483,997	7,131.182	.436
32nd	28,258,204	4,774,206	.203
33rd	35,779,921	7,521,717	.266
34th	40,707,972	4,928,051	.137

TABLE III.—Classification of Local Loans.

	Education.	Sanitary.	Public works.	Industry.	Redemption of old loans.	Total.
	yen.	*yen.*	*yen.*	*yen.*	*yen.*	*yen.*
Prefectural...	745,452	—	9,599,312	34,400	—	10,379,664
District	130,770	—	93,437	106,000	9,141	339,348
City	312,210	7,500	18,919,651	—	24,297	19,263,662
Towns and villages...	435,720	9,734	634.109	324,907	112,970	1,517,449
Association	—	900	1,585 655	12,490	88,628	1,687,673
Total...	1,624,656	18,134	30,832,164	477,797	235,045	33,187,796
At the end of 33rd year	336,456	86,740	29,851,443	285,941	208,892	30,769,473
32nd year...	232,295	85,480	23,999,226	170,444	140,852	24,682,294
31st year	204,787	85,720	19,738,000	85,045	150,927	20,264,480
30th year	105,395	37,540	13,490,746	75,045	29,434	13,738,161
29th year	43,033	40,400	10,351,700	75,545	7,734	10,518,414
28th year	25,316	2,600	10,187,912	75,545	8,559	10,299,934
27th year	23,378	4,000	9,953,790	75,545	5,040	10,061,253
26th year	9,881	4,000	9,078,300	—	1,620	9,093,801

CHAPTER III.—Currency System.

Existing System and its History—Effect of the Coinage System on the Finance and Economy of the Country.

I. EXISTING SYSTEM AND ITS HISTORY.

The existing currency system is based on the Coinage System promulgated in the 30th year (1889), and which ushered in the gold standard in this country. The principal points in the currency system are these :—

1. The unit of the coinage shall be 2 *fun* of pure gold (11.574 grains), and shall be one half the value of the old gold unit.
2. The gold coins shall be of three denominations, 5 *yen* coins, 10 *yen* coins, and 20 *yen* coins, and the gold coins issued under the old coinage law shall have double the value of the coins of corresponding denominations issued under the new coinage law.
3. Subsidiary silver pieces shall be of three denominations, 10 *sen* pieces, 20 *sen* pieces, and 50 *sen* pieces. The 5 *sen* silver pieces issued under the old coinage system shall in circulation as before.
4. Subsidiary copper coins shall be of three denominations, 5-*sen* nickel pieces, 1-*sen* copper pieces and 5-*rin* copper pieces. The 2-*sen* pieces, 1-*sen* pieces, 5-*rin* and 1-*rin* pieces, issued before shall continue in circulation as before.
5. The circulation of 1 *yen* silver coins that was used as legal tender to any amount at the rate of 1 *yen* gold piece was prohibited on April 1, 31st year, and its withdrawal from circulation was effected on July 31st of the same year.

A brief history of the development of the existing monetary system shall be described in the following paragraphs.

FIRST PERIOD.

One of the first things which the Meiji Government attempted in the way of internal reform was to unify the cur-

rency system with the object of securing its stability. The promulgation of the New Coinage Regulations in the 4th year (1871) first laid the basis of a sound monetary system. The regulations adopted 1 *yen* gold piece weighing 23.15 grains as the unit of standard, and minted 2 *yen*, 5 *yen*, 10 *yen*, and 20 *yen* pieces. Subsidiary coins consisted of silver and copper pieces, the former being of four denominations of 5-*sen*, 10-*sen*, 20-*sen* and 50-*sen*, and the other also of four denominations, 1-*rin*, 5-*rin*, 1-*sen*, and 2-*sen* (5-*sen* nickel pieces were first minted in the 22nd year.) At the same time the Government issued 1-*yen* silver coin equal in weight and quality to the Mexican dollars that were circulating extensively at that time in the Far East. The 1-*yen* coins called "trade dollar" having been issued to serve the convenience of merchants engaged in foreign trade, they were acceptable only within the limits of the treaty ports. The relative value of the 1-*yen* silver pieces was fixed at the rate of 100 silver *yen* to 101 gold *yen* of the fineness of 23.15 grains, that is to say at the rate of 1 of gold to about 16.014 of silver. (By Notification issued in the 9th year 100 *yen* in silver coins was made equal in value to 100 *yen* in gold, the rate being 1 of gold to about 16.174 of silver.)

SECOND PERIOD.

The gold mono-metallism that was adopted early in the era began to be seriously affected from about the 6th year, when the gold-price of silver fell very considerably in Europe and America, so that whereas at first the relative value was 1 of gold to 16 of silver, it fell to one of gold to 19 or 20 of silver. Situated as Japan was in the midst of silver using countries, it was decided, for the sake of promoting transactions with those countries, to make the trade dollar legal tender throughout the country and to allow it to be circulated to any amount side by side with the gold coins. In consequence of this new arrangement put in force in the 11th year, the monetary system of Japan was no longer gold mono-metallism, but was changed to a system of gold and silver bi-metallism.

THIRD PERIOD.

The paper notes issued by the Treasury in the first year of Meiji (1868) were a result of imperious necessity of meeting the various urgent calls of expenditure occasioned by the inauguration of the new Government. At first they were convertible notes, but, coming to the 4th year, they began to suffer depreciation. A similar remark applies to the bank notes issued in virtue of the National Bank Regulations promulgated in the 5th year. They were at first convertible into specie, but when in the 9th year the Regulations were amended to the effect that the bank notes were convertible into inconvertible Treasury notes, they were brought down to the same level of inconvertibility as the other kind of notes. Though those notes were reduced to that unlucky position, the evil resulting therefrom was not yet serious, owing to the fact that the amount of the two kinds of notes was still comparatively small. The outbreak of the South-western Civil war in the 10th year and the issue of 27 million *yen* at one time by the Government and also the issue of no small amount by the banks at once inflated the volume of inconvertible notes. This tendency was further accelerated, for as a result of amendment of the National Bank Regulations in the 9th year the creation of new banks followed in quick succession. At the end of the 12th year therefore the volume of inconvertible paper money swelled to as much as 34,000,000 *yen*. The evil effect of this condition of the currency soon began to make itself felt in every direction; the price of commodities rose rapidly, specie left the country, the imports continued to exceed the exports, public bonds continued to come down to an alarming extent, and in short it seriously impaired the prosperity of trade and industry.

The Government adopted measures calculated to remedy this disastrous state of affairs. From the 13th year systematic efforts were made to accomplish this adjustment, and to redeem the paper money. In pursuance of that resolution the Government began to hoard specie. Coming to the 16th year we find that it amended the National Bank Regulations. It after-

wards caused the banks to deposit specie reserves with the Bank of Japan that had been established in the 17th year, and this central bank was made to issue convertible notes on the bases of the specie reserves it had in its vault.

The redemption of the inconvertible notes and the issue of convertible notes to take their place reduced the volume of notes in circulation, and restored their value to par. At the same time the exodus of specie was stopped, trade revived, prices and the rate of interest fell, and succeeded to restore the market and industry to their normal state of activity. Meanwhile the specie reserves against Government notes went on accumulating, so that the Government was in the position in June of the 18th year, to give notice that specie payment would be resumed from January 19th year and that the inconvertible notes would be redeemed with silver specie. Thus the important object of financial adjustment was at last realized.

The circulation of Government notes was prohibited not later than December 31st of the 32nd year, while that of bank notes was similarly prohibited on December 9th of the same year. The period of five years after the notice of withdrawal from circulation was at the same time granted during which a holder of those notes was entitled to have them exchanged for convertible legal notes. This period has not yet come to an end.

FOURTH PERIOD.

With the redemption of paper money by silver after the 19th year and the placing of paper on par with silver, the monetary system of Japan, though theoretically a bi-metallic system, practically became silver system. Though this financial state was an outcome of unavoidable circumstances, this change of the gold mono-metallic system into a silver standard system proved highly disastrous for our country. For the fall of silver that began to take place about the 6th year kept on with greater rapidity, and was still more accelerated owing to the conversion of silver countries into gold countries. It is true that the United States of America made an attempt to check their downward course by adopting the Sherman act and by

convening an International Monetary System Conference. These efforts ended in a failure and the fall continued with unabated force.

This movement of the silver market inflicted no small injuries on our national economy, so that the Government at last decided to institute inquiries into the question of monetary standard, and appointed in the 26th year a commission charged with this special task. The commission was composed of officials of the Departments of State concerned with this affair as well as of economists and business-men at large. The points which the commission were asked to deliberate on and discuss were (1) the causes of the recent fluctuation in the price of gold and silver, and their general effect, (2) the effect of those fluctuations on the economic condition of the country ; (3) whether, in view of these fluctuations, there was any need of making a change in the coinage system of the country, and if so what system ought to be adopted, and what measures should be taken for effecting that change. The commission sat for about two years, and after having made careful investigations into the subject came to the conclusion that our coinage system required a change, and that the change should be the adoption of the gold standard. The Government, however, had at that time no fund at its diposal to enable it to carry out this decision of the commission. Fortunately the Japan-China war and the indemnity paid by China enabled the Government to procure that fund.

FIFTH PERIOD.

This Indemnity reached Japan at a very opportune moment so far as the change of the coinage system was concerned, for its came just when the Government, impelled by nccessity, was thinking of carrying out the change just referred to and when the time for making that change had in fact come. Determined to effect this important monetary change, the Government introduced in the 30th year the Coinage Bill to the Diet. The bill with the approval of both Houses, was passed in March of the same year, and put in force on October 1st of the same year, as briefly described at the beginning of this chapter.

As soon as the adoption of a gold standard had been decided upon, the Government began purchasing abroad gold bullion with part of the Indemnity, and the bullion brought home was handed over to the Imperial Mint with instruction to stamp the gold coins with the greatest possible speed. The Mint attended to the work with great energy, and minted over 76,000,000 *yen* gold coins from July 30th to April of the following year.

Effect of the Coinage Reform on the Finance and Economy of the Country :—As only not more than five years have elapsed since the putting in operation of the new coinage system, it is not yet possible to define with any precision the effects which the new system has had upon the economic condition of the country. There have been, moreover, other accidental causes in operation since that time, such as, for example, the abnormal influence exerted on our economical system by the sudden expansion of Government and private enterprises after the Japan-China War, the outbreak of the North China trouble, the failure of the rice crop, the coming into operation of the revised tariff laws, etc. All these have tended to complicate the economic condition of the country, rendering it extremly difficult to point out in any clear manner the effects attending the adoption of the gold standard. However the result of the new coinage system may be broadly stated, in the following paragraphs :—

a. The adoption of the gold standard has placed our currency system on a firm basis and freed it from those fluctuations that constantly disturbed the market while it had rested on silver basis. Not only did these fluctuations always affect the standard of price, but they also placed our currency system in a position of great insecurity, inasmuch as the specie reserves against convertible notes of the Bank of Japan, which principally consisted of silver, constantly fluctuated in price. The adoption of the gold standard has rendered the basis of the currency system stable and firm, as it has made the standard of price secure and free from fluctuations. Had Japan remained to be a silver country, her credit among the gold countries now that the price

of silver has steadily gone down, would have fallen in value on the other hand, while her liabilities would have increased. The result would have manifested itself in the exodus of specie, and the weakening of the stability of the convertible system, even to the extent of imperilling the security of the monetary system. From all those risks and also from other unexpected risks incidental to them, the country has been exempted, thanks to the adoption of the gold standard.

b. The change of the coinage system, while it did not disturb the relation of creditors and debtors that had existed, has rendered that relation one of greater security and therefore has tended to facilitate the smooth operation of commercial transactions. The reason why the change of the coinage system has not disturbed the relation that had existed between creditors and debtors, is not far to seek. It will be remembered that, prior to that change, the legal relative value of gold and silver was at the rate of one of gold to 16.174 of silver. But in actual price the rate stood at 1 to 31 to 35, and the transactions were carried on the standard of silver. The new coinage system reduced by one half the weight of gold in the 1-*yen* gold pieces and 2 *fun* (11.574 grains) was fixed on as the weight of a 1-*yen* gold piece. In other words, ratio of gold to silver stood at 1 to 32.348. The consequence was that the only change that attended the adoption of the standard consisted in the transfer of the standard of price from silver to gold, and that the actual one-*yen* standard remained unchanged.

While the silver system was in force, the fluctuation in the price of silver constantly affected the interests of creditors and debtors. The sense of insecurity which the people naturally felt owing to that cause very much obstructed business transactions, while on the other hand this insecurity imparted to those transactions a feature of speculation. All these things did not fail to seriously affect our social economy. By the adoption of the gold standard the evils of insecure relation between creditors and debtors and the obstructions standing in the way of transactions have been removed, and the system of credit has been encouraged and developed.

c. The prices are no longer influenced by the fluctuations of the price of silver, and are therefore prevented from making any undue advance. Owing to the stability of the standard of value in consequence of the adoption of the gold standard, any fluctuations affecting the market prices of commodities are regulated by the normal relation of supply and demand, and therefore the complicating feature incidental to the constant changes of the price of silver has been eliminated from the market. If any relation exists even to-day between the currency and the prices of commodities, that is solely attributable to the volume of the former, and the changes arising from the changes in the value of the currency have entirely disappeared. This stability in the standard of value has, it is hardly necessary to point out, introduced order and system into business transactions, both domestic and foreign. It is easy to conceive how, had Japan still remained a silver country, the market prices of commodities, now that the price of silver is steadily declining, would have been far higher than at present, and how, in foreign trade, imports would have always exceeded exports. Salaried people would be placed in a very unfortunate position, for their earnings would lose more or less of their purchasing value and the amount of the salaries and wages would be merely nominal. Moreover the presence of the silver standard would seriously hamper the rise of legitimate and useful enterprises. Thanks to the adoption of the gold standard Japan has escaped from all those causes of evils.

d. The new coinage system has placed financial measures and useful undertakings on a sound basis. Since the adoption of the gold system and since the standard of value has been made stable and secure, it has been possible, on the one hand, to render the financial measures of the Government sound and free from unexpected changes, and on the other to place tradal and industrial enterprises on a similarly sound basis. Both measures and enterprises are in short freed from risks of unexpected changes and dangers of miscalculations inseparable from the varying changes of the value of silver.

e. The exchange business with gold-using countries has been

made stable and the sound development of foreign trade has been secured by the new coinage system. The trade with silver-using countries has also advanced satisfactorily, instead of being subjected to any difficulties. Indeed the exchange rate with gold-using countries has been made practically stable, and free from all those sudden changes that frequently appeared formerly. The result has been a powerful and healthy stimulus to the development of our trade with gold-using countries.

During the four years prior to the carrying into effect of the gold standard, that is from the 26th to the 29th year inclusive, the imports from gold-using countries advanced by 32.8 per cent. a year on an average while the exports advanced by 9.3 per cent. on an average. During the next four years, the 31st to the 34th year, the average increase of the imports was 4.5 per cent. and the average increase of the exports 19.4 per cent. The trade with silver-using countries, in spite of the presence of deterring influences in the shape of the constant fluctuations of the silver market, has also shown a prosperous condition, probably owing to the development of our productive enterprises, of the means of transportation, and of the increase of the foreign demand for our goods. During the four years preceding the adoption of the gold standard, the imports from the principal silver countries increased on an average by 12.8 per cent. and the exports by 14.4 per cent. During the four years ended the 34th the imports decreased by about 9.9 per cent. on an average while the exports increased by about 14.4 per cent.

The advantage which the new coinage system confers on Japan in connection with her foreign payments is not small. This is indeed an important thing when it is remembered that Japan's creditors are principally gold-using countries, so that Japan, had she remained as a silver country, would have to pay in the ever-fluctuating silver the principle and interest of her foreign loans, the price of her purchases, travelling-expense, etc. Not to speak of the great uncertainity in transactions and the great inconvenience in remittance, the loss which Japan would

have to incur on that account would not be small. For one and the same amount of liabilities absolutely speaking Japan would have to bear in that case a heavier burden. From all these evils Japan has been freed by the adoption of the gold standard.

g. The benefit of international community in economic affairs has been established by the new coinage system, for it cannot be denied that of all the various devices that may be made use of for bringing different countries into closer economic relation with each other, the identity of the coinage system constitutes the most potent cause. Now as a result of the adoption of the gold standard, Japan's money market has been brought directly into touch with the central markets of the world. The closer relation thus brought about has led to the capital of other gold countries flowing into this country and contributing to the development of its economic enterprises. The loans raised by Japan in London or the bonds issued there have induced European and American capitalists to constantly invest their money in our loan bonds, which have therefore began to be regularly quoted on the London market, the amount of transaction showing a steady increase. Again foreign capitalists have become willing to supply municipal loans or loans of business concerns, and they are also disposed to invest in various undertakings. This circumstance may partly be due to the actual state of our trade and manufacture having become better known among foreign capitalists, but it can not be denied that it is principally a result of the adoption of the gold standard in our country and to the removal of various obstacles that formerly stood in the way of the introduction of foreign capital.

In short the result of the adoption of the gold mono-metallism has been far-reaching, for while it has placed our monetary system on a firm and sound basis and has promoted our financial and economic stability and sound development, it has enhanced the credit of the country in the world's markets. The truth of the foregoing remarks will be further demonstrated by the appended tables:—

AMOUNT OF COINS AND PAPER MONEY IN CIRCULATION.

(unit of *yen*).

AMOUNT OF COINS.

At the end of Dec.	Gold coins.	Silver coins (1 *yen*).	Subsidiary Silver coins.	Subsidiary Copper coins (Nickel coins included).	Total.
1st	—	—	—	—	—
2nd	—	—	—	—	—
3rd	—	—	—	--	—
4th	2,666,639	2,740,245	1,409 331	5,624,603	12,440,818
5th	26,160,931	3,663,334	3 858,526	5,624,603	39,307,394
6th	43,551,184	3,663,334	7,597,453	5,634,318	60,446,289
7th	39,711,743	4,572,401	8,764,775	6,059,964	59,108,883
8th	32,316,939	4,478,033	9,610,291	6,933,898	53,339,161
9th	29,840,204	6,140,056	12,868,301	7,952,201	56,800,762
10th	25,740,862	5,869,485	15,546,649	6,034,018	56,191,014
11th	23,227,198	6,423,124	16,912,550	9,734,404	56,297,276
12th	19,822,836	7,383,620	14,158.987	10,191,861	51,557,304
13th	14,929,448	9,442,914	9,589,113	10,665,859	44,627,334
14th	13,696,639	9,367,593	8,135,836	11,240,608	42,440,676
15th	13,049,148	13,842,648	7,499,259	12,231,164	46,622,219
16th	12,655,270	17,195,954	7,301,312	13,168,768	50,351,304
17th	11,997,820	20,138,400	7,263,039	14,182,618	53,581,877
18th	12,555,240	22,413.577	9,252.885	14,755,568	58,977,270
19th	13,287,556	24,086,570	9,253,031	15,078,536	61,705,693
20th	14,110,861	22,015,114	11,244.581	14,912,627	62,283,183
21st	14,688,827	26,179,766	11,982,799	14,799,247	67,650,639
22nd	16,355,760	31,673,733	12,194,949	13,485,114	73,909,556
23rd	16,271,829	27,361,663	12,192,756	14,864,425	70,690,673
24th	17,208,066	35,383,284	13,192,519	14,692,121	80,475,990
25th	12,209,757	46,921,639	14,301.597	14,835.144	88,368,138
26th	12,236,519	52,124,353	16,188 905	15,020,757	95,570,534
27th	11,957,378	46,292,212	18,170,550	15,506,679	91,926,819
28th	12,254,526	47,192,176	20,751,998	15,490,366	95,689,066
29th	12,811,389	50,977,504	23,228,777	15,521,101	102,538,771
30th	79,899,898	31,048,987	29,395,940	16,093,962	156,438,788
31st	83,648,655	—	45,814,139	16,992,185	146,454,979
32nd	93,360,986	—	54,610,031	17,504,068	165,475,085
33rd	52,930,394	—	57,118,376	17,446,096	127,494,866
34th	59,342,303	—	58,298,490	17,758,238	135,399,031

At the end of Dec.	Amount of paper money issued.				Amount of coins and paper in circulation.
	Government paper money.	National bank notes.	Convertible bank notes.	Total.	
1st	24,037,390	—	—	24,037,390	24,037,390
2nd... ...	50,090,867	—	—	50,090,867	50,090,867
3rd	55,500,000	—	—	55,500,000	55,500,000
4th	60,272,000	—	—	60,272,000	72,712,818
5th	68,400,000	—	—	68,400,000	107,707,394
6th	78,381,014	1,362,210	—	79,743,224	140,189,513
7th	91,902,304	1,995,000	—	93,897,304	153,006,187
8th	99,071,870	1,420,000	—	100,491,870	153,831,031
9th	105,147,583	1,744,000	—	106,891,583	163,692,345
10th	105,797,092	13,352,751	—	119,149,843	175,340,857
11th	139,418,592	26,379,006	—	165,697,598	221,994,874
12th	130 308,921	34,046,014	—	164,354,935	215,912,239
13th	124,940,486	34,426,351	—	159,366,837	203,994,171
14th	118,905,195	34,396,818	—	153,302,013	195,742,689
15th	109,369,014	34,385,349	—	143,754,363	190,376,582
16th	97,999,277	34,275,736	—	132,275,013	182,626,317
17th	93,380,234	31,015,942	—	124,396,176	177,978,053
18th	88,345,096	30,155,389	3,956,161	122,456,646	178,122,455
19th	67,800,846	29 501,485	39,549,815	136,852,146	174 935,831
20th	55,815 045	28,604,133	53,454,803	137,873,981	169,160,489
21st	46,734,741	27,679,657	65,770,580	140,184,978	177,519,246
22nd... ...	40,913,035	26,739,205	79,108,652	146,760,892	188,634,493
23rd	33,272,715	25 810,720	102,931,766	162,015,201	205,408,438
24th	27,886,721	24,869,508	115,734,545	168,490,774	210,872,584
25th	20,828,245	23,890,510	125,843,363	170,562,118	216,786,121
26th	16,407,000	22,756,119	148,663,128	187,826,247	238,498,319
27th	13,404,547	21,781,796	149,813,700	185,000,043	247,711,285
28th	11,129,224	20,796,786	180,336,815	212 262,825	282,000,811
29th	9,376,172	16,497,889	198,313,896	224,187,957	300,373 686
30th	7, 51,098	5,024,729	226,229,058	238,704,885	330,470,142
31st	5,411,726	1,866,563	197,399,901	204,678,190	285,619,698
32nd... ...	4,125,783	981,608	250,562,040	255,669,431	337 809,481
33rd	1,767,814	483,933	228,570,032	230,821,779	320,282,135
34th	1,609,772	449,320	214,036,766	216,155 858	308,766,069

WORLD'S OUTPUT OF GOLD AND SILVER.

(Relative price of gold and silver).

	Ounces.	Ounces.	Relative price.
1st	6,270,086	43,051,583	15.59
2nd	6,270,086	43,051,583	15.60
3rd	6,270,086	43,051,583	15.57
4th	5,591,014	63,317,014	15.57
5th	5,591,014	63,317,014	15.63
6th	4,653,675	63,267,187	15.92
7th	4,390,031	55,300,781	16.17
8th	4,716,563	62,261,719	16.59
9th	5,016,488	67,753,125	17.88
10th	5,512,196	62,679,916	17.22
11th	5,761,114	73,385,451	17.94
12th	5,262,174	74,383,495	18.40
13th	5,148,880	74,795,273	18.05
14th	4,983,742	79,020,872	18.16
15th	4,934,086	86,472,091	18.19
16th	4,614,588	89,175,023	18.64
17th	4,921,169	81,567,801	18.57
18th	5,245,572	91,609,959	19.41
19th	5,135,679	93,297,290	20.78
20th	5,116,861	96,123,586	21.13
21st	5,330,775	108,827,606	21.99
22nd	5,973,790	120,213,611	22.10
23rd	5,749,306	126,095,062	19.76
24th	6,320,194	137,170,919	20.92
25th	7,094,266	153,151,762	23.72
26th	7,618,811	165,472,621	26.47
27th	8,764,362	164,610,394	32.56
28th	9,615,190	167,500,960	31.61
29th	9,783,914	157,061,370	30.65
30th	11,420,068	160,421,082	34.34
31st	13,877,806	169,055,253	35.01
32nd	14,859,285	167,577,533	34.36
33rd	12,366,319	172,838,870	33.36
34th	Unknown.	Unknown.	34.67

EXPORTS TO GOLD STANDARD COUNTRIES.

(unit of *yen*.)

Year.	United States of America.	Great Britain.	France.	Germany.	Belgium.
26th... ...	27,739,458	4,995,974	19,531,975	1,380,040	226,284
27th... ...	43,323,557	5,950,198	19,498,776	1,517,549	19,480
28th... ...	54,028,950	7,883,091	22,006,386	3,340,013	131,944
29th... ...	31,532,341	9,012,398	19,027,389	2,972,137	111,467
30th... ...	52,436,404	8,481,196	26,213,654	2,207,018	109,312
31st	47,311,155	7,783,643	20,596,407	2,469,242	101,164
32nd... ...	63,919,270	11,270,770	29,247,837	3,796,927	331,415
33rd	52,566,396	11,262,997	19,150,423	3,556,613	296,512
34th	72,309,359	11,482,504	27,275,671	5,251,071	519,327

Year.	British America.	Australia.	Switzerland.	Italy.	Total.
26th	1,720,559	890,637	227,141	1,631,908	58,343,976
27th	2,211,687	1,098,066	703,021	2,900,390	77,222,724
28th	1,986,169	1,281,104	467,718	3,550,736	94,676,111
29th	1,594,045	1,458,253	617,707	2,669,106	68,994,843
30th	2,054,620	1,875,170	897,047	2,991,889	97,256,310
31st	2,265,620	1,995,680	236,686	2,485,362	85,244,959
32nd... ...	2,358,099	2,169,921	111,578	3,581,709	116,787,526
33rd	2,950,662	2,530,525	117,877	7,109,311	99,560,316
34th	3,276,114	2,533,357	150,284	12,569,485	135,367,172

Note :—In this table the returns of only those countries which bear close commercial relation with Japan are given, and those with Holland, Austria-Hungary, Spain, Norway-Sweden, Turkey, Portugal, Denmark, Hawaii, etc. are omitted.

British India having been converted into a gold country in the 32nd year, it is also omitted.

This remark also applies to the table relating to imports given next.

IMPORTS FROM GOLD-STANDARD COUNTRIES.

(unit of *yen*.)

Year.	United States of America.	Great Britain.	France.	Germany.	Belgium.
26th	6,090,408	27,929,628	3,305,277	7,318,134	935,001
27th	10,982,558	42,189,874	4,348,048	7,909,542	1,201,121
28th	9,276,360	45,172,111	5,180,135	12,233,159	2,066,245
29th	16,373,420	59,251,780	7,682,347	17,183,953	3,106,094
30th	27,030,538	65,406,266	5,147,592	18,143,280	3,173,218
31st	40,001,098	62,707,572	6,579,893	25,610,962	4,316,703
32nd... ...	3,845,894	44,836,994	5,768,180	17,613,191	5,415,815
33rd	62,761,198	71,638,220	8,095,820	29,199,696	7,949,253
34th	42,769,430	50,575,789	3,752,828	28,320,102	5,810,897

Year.	British America.	Australia.	Switzerland.	Italy.	Total.
26th	16,629	319,034	669,301	86,578	46,669,990
27th	45,395	534,763	629,208	170,340	68,010,849
28th	13,718	1,031,725	1,040,212	148,465	76,162,120
29th	51,525	835,046	2,534,217	182,924	107,201,306
30th	129,129	897,050	2,555,905	213,267	122,696,245
31st	156,986	1,403,436	3,498,310	385,819	44,660,869
32nd... ...	183,018	1,708,670	1,676,669	236,988	115,654,414
33rd	316,669	2,455,940	3,012,505	450,107	85,879,048
34th	181,785	1,777,599	2,208,574	154,382	135,551,386

EXPORTS TO SILVER-STANDARD COUNTRIES.

(unit of *yen*).

Year.	China.	Hongkong.	Korea.	French India.	Philippines Islands.	Siam.	Total.
26th.....	7,714,420	15,688,875	1,301,243	—	120,417	6,403	24,831,358
27th.....	8,813,987	16,199,481	2,365,112	24,523	220,587	2 953	27,626,743
28th.....	9,135,109	18,362,803	3,831,477	17,555	194 832	7,930	31 549,706
29th.....	13,823,844	19,965,900	3,367,693	30,461	187,786	9,892	37,385,576
30th.....	21,325,065	25,390,294	5,196,573	35,514	186,383	22,466	52,156,295
31st	29,193,175	31,473,896	5,844,332	111,421	115,433	41,720	66,779,977
32nd ...	40,257,034	34 291,308	6,995,931	161,048	286,772	26,614	82,018,707
33rd.....	31,871,590	39,177,455	9,953,272	114,407	1,257,126	35,621	82,409,471
34th.....	42,925,579	41,786,647	11,372,551	148,470	2,580,682	32,002	98,849,930

Note :—In this table the returns of only those countries bearing close commercial relation with Japan are given, and the returns of Peru, Mexico, etc. are therefore omitted.

As Russia was changed to a gold country from the 31st year its returns are also omitted.

This remark also applies to the next table.

IMPORTS FROM SILVER-STANDARD COUNTRIES.

(unit of *yen*).

Year.	China.	Hongkong.	Korea.	French India.	Philippine Islands.	Siam.	Total.
26th ...17,095,675	8,268,071	1,999,439	—	567 133	54,391	27,984,709	
27th ...17,511,507	8,999 718	2,183,313	6,087,615	1,698,819	618,859	37,099,831	
28th ...22,985,144	8 078,190	2,925,400	3 382,674	1,220,745	143,095	38,735,248	
29th ...21,344,521	9,133,778	5,118,925	1,673 388	1,804,914	203,275	39,278,801	
30th ...29,265,849	12,027,197	8,864,360	9,525,552	2,675,300	1,190,669	63,549,223	
31st .. 30,523,862	15,604,467	4 796,032	26,668,444	3,294,183	4,175,610	85,362,598	
32nd ...28,687,731	7,338,455	4,976,167	4,489,326	2,383,874	757,030	48,632,583	
33rd ...29,960,740	10,659,855	8,805,618	3,632,642	2,284,294	585,480	55,928,630	
34th ...27,256,986	11,141,788	10,052,438	4,082,897	2,981,031	1,195,082	56,710,221	

QUOTATION OF GOLD BULLION IN LONDON.

(per 1 ounce.)

Date.	Maximum.			Minimum.			Average.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
Jan. 30th year...	3	17	10.5000	3	17	10.2500	3	17	10.4063
Feb. „ ...	3	17	10.3750	3	17	10.3750	3	17	10.3750
Mar. „ ...	3	17	10.0000	3	17	09.5000	3	17	09.8500
Apr. „ ...	3	17	11.5000	3	17	11.0000	3	17	11.3750
May „ ...	3	17	11.3750	3	17	10.7500	3	17	11.0625
June „ ...	3	17	11.7500	3	17	11.1250	3	17	11.4500
July „ ...	3	17	11.3750	3	17	11.1250	3	17	11.1875
Aug. „ ...	3	17	11.5000	3	17	11.0000	3	17	11.2813
Sept. „ ...	3	17	11.5000	3	17	11.0000	3	17	11.3750
Oct. „ ...	3	17	11.7500	3	17	11.0000	3	17	11.5000
Nov. „ ...	3	17	11.7500	3	17	11.7500	3	17	11.7500
Dec. „ ...	3	18	00.0000	3	17	11.5000	3	17	11.7500
Averages of maximum and minimum	3	18	00.0000	3	17	09.5000	3	17	11.1136
Jan. 31st year ...	3	17	11.0000	3	17	10.5000	3	17	10.8750
Feb. „ ...	3	17	11.0000	3	17	09.5000	3	17	10.3125
Mar. „ ...	3	17	10.7500	3	17	10.2500	3	17	10.6000
Apr. „ ...	3	17	11.5000	3	17	09.7500	3	17	11.0000
May „ ...	3	17	09.7500	3	17	09.0000	3	17	09.4063
June „ ...	3	17	10.5000	3	17	09.7500	3	17	10.0000
July „ ...	3	17	10.7500	3	17	10.2500	3	17	10.3750
Aug. „ ...	3	17	10.7500	3	17	10.0000	3	17	10.2500
Sept. „ ...	3	18	00.0000	3	17	10.2500	3	17	11.1875
Oct. „ ...	3	17	11.3750	3	17	09.5000	3	17	10.4688
Nov. „ ...	3	18	00.0000	3	17	09.5000	3	17	10.0500
Dec. „ ...	3	18	00.0000	3	17	11.2500	3	17	11.6875
Averages of maximum and minimum	3	18	00.0000	3	17	09.0000	3	17	10.5170
Jan. 32nd year...	3	17	10.7500	3	17	09.5000	3	17	10.1250
Feb. „ ...	3	17	09.5000	3	17	09.2500	3	17	09.3125
Mar. „ ...	3	17	09.7500	3	17	09.2500	3	17	09.5500
Apr. „ ...	3	17	09.5000	3	17	09.0000	3	17	09.2500
May „ ...	3	17	09.0000	3	17	09.0000	3	17	09.0000
June „ ...	3	17	09.0000	3	17	09.0000	3	17	09.0000
July „ ...	3	17	09.5000	3	17	09.0000	3	17	09.2500

Date.	Maximum. £. s. d.	Minimum. £. s. d.	Average. £. s. d.
Aug. 32nd year...	3 17 09.0000	3 17 09.0000	3 17 09.0007
Sept. ,, ...	3 17 09.0000	3 17 09.0000	3 17 09.0000
Oct. ,, ...	3 17 09.0000	3 17 09.0000	3 17 09.0000
Nov. ,, ...	3 17 09.7500	3 17 09.2500	3 17 09.2500
Dec. ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
Averages of maximum and minimum	3 17 10.7500	3 17 09.0000	3 17 09.2656
Jan. 33rd year...	3 17 09.2500	3 17 09.0000	3 17 09.2500
Feb. ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
Mar. ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
Apr. ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
May ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
June ,, ...	3 17 10.5000	3 17 09.2500	3 17 09.8125
July ,, ...	3 17 10.7500	3 17 09.7500	3 17 10.5000
Aug. ,, ...	3 17 09.7500	3 17 09.7500	3 17 09.7500
Sept. ,, ...	3 17 10.2500	3 17 09.7500	3 17 10.0000
Oct. ,, ...	3 18 00.0000	3 17 10.2500	3 17 11.5000
Nov. ,, ...	3 18 00.0000	3 18 00.0000	3 18 00.0000
Dec. ,, ...	3 18 00.0000	3 18 00.0000	3 18 00.0000
Averages of maximum and minimum	3 18 00.0000	3 17 09.2500	3 17 10.1510
Jan. 34th year...	3 18 00.0000	3 17 09.7500	8 17 10.8000
Feb. ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
Mar. ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
Apr. ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
May ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
June ,, ...	3 17 09.2500	3 17 09.2500	3 17 09.2500
July ,, ...	3 17 09.5000	3 17 09.2500	3 17 09.3500
Aug. ,, ...	3 17 09.7500	3 17 09.2500	3 17 09.3750
Sept ,, ...	3 17 11.0000	3 17 10.7500	3 17 10.8750
Oct. ,, ...	3 17 11.8750	3 17 11.0000	3 17 11.5250
Nov. ,, ...	3 17 11.2500	3 17 09.1250	3 17 10.1563
Dec. ,, ...	3 17 10.5000	3 17 09.7500	3 17 10.2500
Averages of maximum and minimum	3 18 00.0000	3 17 09.1250	3 17 09.8818
Jan. 35th year...	3 17 10.6250	3 17 10.2500	3 17 10.5000
Feb. ,, ...	3 17 10.6250	3 17 09.5000	3 17 10.0625
Mar. ,, ...	3 17 09.5000	3 17 09.2500	3 17 09.4375

The foregoing table is based on the reports of the Yokohama Specie Bank.

QUOTATION OF SILVER BULLION IN LONDON.

Date.	Maximum.	Minimum.	Average.
	d.	*d.*	*d.*
Jan. 26th year	38.5000	38.1250	38.1428
Feb. ,, ...	38.5000	38.2500	38.3587
Mar. ,, ...	39.1875	37.5625	38.1635
Apr. ,, ...	38.2500	37.8750	38.0208
May ,, ...	38.5625	37.6250	38.0926
June ,, ...	38.7500	31.2500	37.5182
July ,, ...	34.7500	30.5000	32.9900
Apr. ,, ...	34.8750	32.5000	33.8825
Sept. ,, ...	34.5000	33.8750	34.1450
Oct. ,, ...	34.1250	32.3750	33.7125
Nov. ,, ...	32.7500	31.5000	32.2344
Dec. ,, ...	32.3123	31.7500	32.0385
Averages of maximum and minimum	39.1875	30.5000	35.6083
Jan. 27th year	31.7500	30.5000	31.3618
Feb. ,, ...	30.8125	27.5000	29.2865
Mar. ,, ...	27.8750	27.0625	27.2700
Apr. ,, ...	29.3750	27.8750	28.7552
May ,, ...	29.2500	28.0625	28.7153
June ,, ...	28.9375	28.3125	28.6500
July ,, ...	28.9375	28.4375	28.6549
Aug. ,, ...	30.5000	28.6875	29.3100
Sept. ,, ...	30.3125	29.1875	29.6513
Oct. ,, ...	29.5625	28.9375	29.1525
Nov. ,, ...	29.3125	28.3750	28.9740
Dec. ,, ...	28.5625	27.1875	27.7836
Averages of maximum and minimum	31.7500	27.0625	28.9637
Jan. 28th year	27.4375	27.1875	27.3239
Feb. ,, ...	27.6875	27.2500	27.4810
Mar. ,, ...	29.2500	27.5625	28.1693
Apr. ,, ...	30.8750	29.7500	30.3825
May ,, ...	30.8750	30.2500	30.6500
June ,, ...	30.6875	30.1875	30.4505
July ,, ...	30.6250	30.1875	30.4864
Aug. ,, ...	30.5625	30.2500	30.3918

Date.	Maximum.	Minimum.	Average.
	d.	*d.*	*d.*
Sept. 28th year	30.5625	30.4375	30.5287
Oct. ,, ...	31.3125	30.5625	30.9087
Nov. ,, ...	31.0000	30.6250	30.7980
Dec. ,, ...	30.6875	29.8750	30.4087
Averages of maximum and minimum	31.3125	27.1875	29.8317
Jan. 29th year	30.8750	30.5000	30.6591
Feb. ,, ...	31.5625	30.7500	30.9948
Mar. ,, ...	31.5625	31.1250	31.3250
Apr. ,, ...	31.2500	30.8125	31.0650
May ,, ...	31.2500	30.9375	31.0745
June ,, ...	31.5625	31.1875	31.3950
July ,, ...	31.5000	31.3750	31.4514
Aug. ,, ...	31.3125	30.5000	30.9210
Sept. ,, ...	30.7500	30.0000	30.3809
Oct. ,, ...	30.7500	29.7500	30.0973
Nov. ,, ...	30.1875	29.7500	29.9375
Dec. ,, ...	30.0000	29.8750	29.9236
Averages of maximum and minimum	31.5625	29.7500	30.7663
Jan. 30th year	29.8125	29.6875	29.7244
Feb. ,, ...	29.7500	29.6875	29.7173
Mar. ,, ...	29.6875	28.4063	29.0300
Apr. ,, ...	28.5000	28.2500	28.3725
May ,, ...	28.6250	27.5000	27.8341
June ,, ...	27.7500	27.5000	27.5924
July ,, ...	27.6875	26.3750	27.2750
Aug. ,, ...	26.6250	23.7500	25.0604
Sept. ,, ...	27.2500	23.7500	25.6399
Oct. ,, ...	27.5000	25.0000	26.5781
Nov. ,, ...	27.5000	26.2500	26.8293
Dec. ,, ...	27.7500	25.6875	26.7953
Averages of maximum and minimum	29.8125	23.7500	27.5374
Jan. 31st year	26.7500	26.1250	26.4006
Feb. ,, ...	26.2500	25.6250	25.9158
Mar. ,, ...	26.0000	25.0000	25.4894
Apr. ,, ...	26.2500	25.6875	25.9099

Date.	Maximum.	Minimum.	Average.
	d.	*d.*	*d.*
May 31st year.....	26.7500	25.8750	26.2981
June ,, ...	27.5000	26.6875	27.0817
July ,, ...	27.8750	27.0000	27.3269
Aug. ,, ...	27.8750	27.0625	27.4400
Sept. ,, ...	28.3125	27.6250	28.0150
Oct. ,, ...	28.2500	27.4375	27.9000
Nov. ,, ...	28.3125	27.6250	27.9583
Dec. ,, ...	27.6250	27.1250	27.4444
Averages of maximum and minimum	28.3125	25.0000	26.9316
Jan. 32nd year	27.6250	27.2500	27.4318
Feb. ,, ...	27.5000	27.3750	27.4402
Mar. ,, ...	27.6250	27.3750	27.4591
Apr. ,, ...	28.8750	27.3750	27.5677
May ,, ...	28.7500	28.0000	28.1643
June ,, ...	28.0625	27.6875	27.7837
July ,, ...	27.7500	27.6250	27.7043
Aug. ,, ...	27.8125	27.3750	27.6635
Sept. ,, ...	27.3750	27.0000	27.1875
Oct. ,, ...	27.0000	26.6250	26.7025
Nov. ,, ...	27.3125	26.7500	27.0378
Dec. ,, ...	27.2125	26.9375	27.1587
Averages of maximum and minimum	28.8750	26.6250	27.4418
Jan. 33rd year	27.6250	27.0000	27.2812
Feb. ,, ...	27.7500	27.3125	27.4948
Mar. ,, ...	27.6875	27.4375	27.5769
Apr. ,, ...	27.5000	27.3125	27.4167
May ,, ...	27.6250	27.4375	27.5601
June ,, ...	28.5625	27.5625	27.7861
July ,, ...	28.5625	27.7500	28.2452
Aug. ,, ...	28.3750	27.9375	28.1227
Sept. ,, ...	29.0625	28.4375	28.7825
Oct. ,, ...	30.1875	29.0625	29.5601
Nov. ,, ...	29.9375	29.4375	29.6536
Dec. ,, ...	29.8750	29.5000	29.6851
Averages of maximum and minimum	30.1875	27.0000	28.2638

Date.	Maximum.	Minimum.	Average.
	d.	*d.*	*d.*
Jan. 34th year	29.4375	27.7500	29.0426
Feb. ,, ...	28.5000	27.8750	28.1196
Mar. ,, ...	28.1875	27.3125	27.9750
Apr. ,, ...	27.8750	26.9375	27.2900
May ,, ...	27.6250	27.1875	27.4306
June ,, ...	27.5625	27.3125	27.4225
July ,, ...	27.2500	26.8155	26.9745
Aug. ,, ...	27.1250	26.7500	26.9329
Sept. ,, ...	27.0000	26.8750	26.9583
Oct. ,, ...	26.9375	26.3750	26.6298
Nov. ,, ...	26.5625	25.3750	26.1425
Dec. ,, ...	25.7500	24.9375	25.4331
Averages of maximum and minimum	29.4375	24.9375	27.1916
Jan. 35th year	26.1250	25.4375	25.6790
Feb. ,, ...	25.5000	25.3125	25.4239
Mar. ,, ...	25.4375	24.8125	25.0225

The foregoing table is based on the reports of the Yokohama Specie Bank.

QUOTATIONS OF FOREIGN EXCHANGE MARKET.

Date.	London per 1 *yen.*	Paris per 1 *yen.*	New York and San Francisco per 100 *yen.*	Bombay per 100 *yen.*	Hongkong per 100 *yen.*	Shanghai per 100 *yen.*
	d.	*f.*	$	rupee.	$	*t.*
Jan. 26th year.	32.7216	3.4377	66.2727	—	100.0000	71.5000
Feb. ,,	32.7283	3.4383	66.4565	—	100.0000	71.5000
Mar. ,,	32.5048	3.4192	66.0096	—	100.3606	71.8173
April ,,	32.4063	3.4013	65.8125	—	100.6354	72.3125
May ,,	32.4444	3.4052	65.8889	—	100.3333	71.9722
June ,,	31.9688	3.3706	64.9375	—	100.5000	71.8077
July ,,	29.6851	3.1115	60.2356	—	100.0865	71.9135
Aug. ,,	29.4792	3.1054	60.0509	—	99.7176	71.7037
Sept. ,,	29.1425	3.0778	59.0750	—	100.0000	71.9600
Oct. ,,	29.0950	3.0544	58.3350	—	99.9200	72.2450
Nov. ,,	28.1198	2.9502	56.5521	—	99.7292	72.4063
Dec. ,,	27.8654	2.9237	55.8269	—	99.9423	72.0000
Jan. 27th year.	27.0881	2.8361	54.1761	—	100.0000	71.9773
Feb. ,,	25.4401	2.6683	50.8073	—	100.0000	71.3750

Date.	London per 1 *yen*.	Paris per 1 *yen*.	New York and San Francisco per 100 *yen*.	Bombay per 100 *yen*.	Hongkong per 100 *yen*.	Shanghai per 100 *yen*.
	d.	*f*.	$	rupee.	$	*t*.
Mar. 27th year.	23.7650	2.4872	48.8400	—	100.0000	71.7900
April ,,	24.7814	2.6000	50.3490	—	100.0000	72.2708
May ,,	25.0208	2.6180	50.7731	—	100.0000	72.6850
June ,,	24.9087	2.6050	50.5673	—	100.0000	72.7500
July ,,	24.9543	2.6120	50.6587	—	99.2500	72.8269
Aug. ,,	25.4977	2.6710	51.7130	—	99.2870	73.2500
Sept. ,,	26.1125	2.7310	52.7250	—	99.5000	73.2500
Oct. ,,	25.5601	2.6810	51.6538	—	99.5000	73.2500
Nov. ,,	24.8125	2.6004	50.0521	—	99.5000	72.3650
Dec. ,,	23.8558	2.4970	48.1731	—	98.8650	72.1440
Jan. 28th year.	23.3125	2.4450	47.1250	—	98.0000	71.9375
Feb. ,,	23.3152	2.4450	47.2170	—	99.1520	71.6090
Mar. ,,	23.8565	2.5020	48.2150	—	99.5100	71.5000
April ,,	25.6050	2.6870	51.7600	—	99.5300	71.5000
May ,,	25.5528	2.6960	52.1630	—	99.4570	71.1540
June ,,	25.5500	2.6800	51.7900	—	99.3900	71.1200
July ,,	25.6065	2.6820	51.9630	—	99.2280	71.6634
Aug. ,,	25.8264	2.7080	52.4027	—	99.5000	71.4629
Sept. ,,	26.1927	2.7430	53.1354	—	99.5000	71.5000
Oct. ,,	26.5120	2.7850	53.7740	—	99.3940	71.7210
Nov. ,,	26.2812	2.7580	53.3125	—	99.1850	71.8750
Dec. ,,	25.4279	2.6680	51.7115	—	99.0000	71.5000
Jan. 29th year.	25.5285	2.6742	52.0455	—	99.0000	71.5000
Feb. ,,	26.0885	2.7298	53.1719	—	99.1875	71.5000
Mar. ,,	26.6925	2.8058	54.2500	—	99.8700	71.8000
April ,,	26.5450	2.7868	53.8750	—	100.0000	72.2500
May ,,	26.6250	2.7900	54.0000	—	100.2880	72.4520
June ,,	26.6394	2.7953	54.0192	—	100.8270	72.7500
July ,,	26.5949	2.7902	53.8796	—	100.4350	72.7500
Aug. ,,	25.9952	2.7267	52.4952	—	99.3890	72.6635
Sept. ,,	25.3025	2.6546	50.9150	—	99.0800	72.2850
Oct. ,,	25.1971	2.6433	50.8990	—	99.0000	71.7981
Nov. ,,	25.5272	2.6815	51.5842	—	99.5710	72.0652
Dec. ,,	25.6505	2.6920	51.8704	—	99.9580	72.2361
Jan. 30th year.	25.4531	2.6692	51.2046	165.7273	99.6023	72.2955
Feb. ,,	25.3363	2.6590	51.1905	165.8571	99.7262	72.3333
Mar. ,,	24.6082	2.5881	49.9423	162.8462	100.4712	72.6250
April ,,	24.3495	2.5528	49.3657	160.4400	100.5288	72.9615
May ,,	23.9849	2.5115	48.6010	162.3269	100.0446	73.0000

Date.	London per 1 *yen.*	Paris per 1 *yen.*	New York and San Francisco per 100 *yen.*	Bombay per 100 *yen.*	Hongkong per 100 *yen.*	Shanghai per 100 *yen.*
	d	*f.*	$	rupee.	$	*t.*
June 30th year.	23.8990	2.5015	48.4808	162.5600	99.5100	73.3200
July ,,	23.9208	2.5015	48.4667	157.7321	100.5403	75.0583
Aug. ,,	24.0625	2.5169	48.6683	154.0190	107.6480	82.0268
Sept. ,,	24.1950	2.5308	48.8900	150.5200	108.2307	83.2351
Oct. ,,	24.3225	2.5436	49.0250	154.3400	104 3947	77.2360
Nov. ,,	24.2943	2.5425	48.9541	154.8958	103.9520	76.4760
Dec. ,,	24.3125	2.5446	48.8750	157.6481	101.6600	74.6252
Jan. 31st year.	24.2983	2.5457	48.8920	150.6590	103.0000	76.3636
Feb. ,,	24.2500	2.5450	48.8750	151.2830	106.0326	78.5980
Mar. ,,	24.2292	2.5461	48.9201	150.3240	106.7600	80.0200
April ,,	24.1611	2.5437	48.8221	151.4615	106.3557	79.7788
May ,,	24.2380	2.5488	48.9422	150.0000	106.9040	80.3269
June ,	24.3125	2.5550	49.2163	150.3846	106·4615	80.0384
July ,,	24.3125	2.5506	49.2500	151.3460	104.3846	78.3650
Aug. ,,	24.3125	2.5538	49.2500	151.5000	104.2870	77.3055
Sept. ,,	24.3625	2.5590	49.2500	151.3400	103.9300	75.8000
Oct. ,,	24.3650	2.5620	49.2360	151.8080	104.1250	75.4620
Nov. ,,	24.3125	2.5560	49.2500	151.0000	103.4270	74.8230
Dec. ,,	24.4595	2.5700	49.4490	151.3330	103.4160	74.5190
Jan. 32nd year.	24.7357	2.5957	49.8579	152.3180	104.4091	75.5454
Feb. ,,	24.8071	2.6000	49.9076	152.7830	104.5434	76.1630
Mar. ,,	24.6025	2.5832	49.6800	153 0800	104.4000	76.8100
April ,,	24.6560	2.5875	49.9170	153.3330	104.0416	76.1666
May ,,	24.6875	2.5900	50.0000	153.4810	103.5556	75.4440
June ,,	24.6875	2.5900	50.0000	153.0000	103.5769	75.2110
July ,,	24.6418	2.5900	50.0000	153.2110	103.5096	75.3700
Aug. ,,	24.5986	2.5877	49.9470	153.4230	103.5865	75.2404
Sept. ,,	24.4800	2 5734	49.6850	152.0200	103.8750	75.9250
Oct. ,,	24.3825	2.5686	49.4650	151.1200	104.9800	76.4635
Nov. ,,	24.4375	2.5700	49.0989	151.5000	104.3906	74.3801
Dec. ,,	24.4183	2.5502	49.5817	151.5000	103.3557	73.5769
Jan. 33rd year.	24.3750	2.5630	49.5056	151.1590	102.9488	73.8010
Feb. ,,	24.3750	2.5600	49.5000	151.2710	103.1042	74.2810
Mar. ,,	24.2720	2.5481	49.2933	151.3850	103.0048	74.1010
April ,,	24.2500	2.5450	49.2500	151.5000	103.0052	74.0050
May ,,	24.2500	2.5450	49.2500	151.5000	103.0000	73.9420
June ,,	24.2500	2.5440	49.2500	151.5000	102.7692	73.7885
July ,,	24.2837	2.5430	49.3173	151.0960	101.5481	72.1250
Aug. ,,	24.3125	2.5450	49.3750	151.0000	100.6296	71.4720

Date.	London per 1 *yen.*	Paris per 1 *yen.*	New York and San Francisco per 100 *yen.*	Bombay per 100 *yen.*	Hongkong per 100 *yen.*	Shanghai per 100 *yen.*
	d.	*f.*	$	rupee.	$	*t.*
Sept. ,,	24.3125	2.5458	49.3750	151.9000	101.5400	70.7700
Oct. ,,	24.3125	2.5500	49.3750	151.0000	103.0481	69.3510
Nov. ,,	24.3125	2.5500	49.3750	151.0000	103.2935	69.1875
Dec. ,,	24.3125	2.5500	49.3750	151.0000	103.5442	68.9330
Jan. 34th year.	24.3125	2.5450	49.3750	151.0000	97.4890	70.2500
Feb. ,,	24.3125	2.5480	49.3750	151.0000	100.4240	72.8804
Mar. ,,	24.2550	2.5454	49.3100	151.0000	100.8700	72.8900
April ,,	24.2500	2.5450	49.2500	151.0000	101.5000	73.1667
May ,,	24.2500	2.5450	49.2500	151.0000	102.0926	73.6944
June ,,	24.3250	2.5510	46.4000	151.0000	102.6900	74.4400
July ,,	24.4861	2.5685	49.6250	151.7220	104.9352	76.7963
Aug. ,,	24.5000	2.5700	49.7407	152.0000	105.2870	77.0555
Sept. ,,	24.5000	2.5700	49.7083	152.0000	104.8229	76.5937
Oct. ,,	24.3726	2.5542	49.3606	151.3460	104.8266	76.9135
Nov. ,,	24.3125	2.5468	49.3400	151.0000	106.2188	78.1771
Dec. ,,	24.3125	2.5500	49.5000	151.0000	107.5385	79.9615
Jan. 35th year.	24.3130	2.5500	49.5000	151.0000	—	—
Feb. ,,	24.4400	2.5590	49.6630	151.0870	—	—
Mar. ,,	24.4850	2.5640	49.7200	151.5000	—	—
April ,,	24.4350	2.5596	49.6200	151.7800	—	—

Note:—The foregoing table is based on the report of the Yokohama Specie Bank. As the bills on Shanghai payable on sight for the month of April could not be quoted, the quotation of bills payable after ten days was used instead.

CHAPTER IV.—The Condition of the Money Market.

History and Existing Condition—Prices of Commodities—Wages—Quotation of Stocks and Shares.

I. HISTORY AND EXISTING CONDITION.

In reviewing the actual condition of the money market in the early part of the Meiji era, we find that there existed practically no regular organs of the money market. To make matters worse, the defective communications and obstacles standing in the way of intercourse between one place and other, always rendered the circulation of money impeded and the supply of funds far from sufficient. The result was manifested in the high rate of interest and of the difficulties that lay in the way of anybody obtaining monetary accommodation.

Nor was this state of affairs improved in any striking way on the advent of the Meiji Government. In the first place it had to issue paper money to meet the requirements of the State, and this issue of inconvertible notes was especially marked from the 6th to the 11th year. The amount issued on the occasion of the South-western civil war alone was as much as 27,000,000 *yen*. The evil due to the presence of this disturbing element in the money market was made still worse by the presence of bank notes which were issued by the national banks the number of which had been very much increased in consequence of the amendment of the National Bank Regulations in the 9th year. In the 13th year the amount of bank notes issued reached over 34,400,000 *yen*, and the volume of Government and bank notes totalled at that time no less than 159,300,000 *yen*. The banks by advancing loans to a considerable extent tried to foster trade and manufactures, but this policy merely served to impart an artificial stim-

ulus to them. The price of paper money continued to fall, and in the 14th year it stood at the rate of 1.79 *yen* to 1 *yen* of silver. The market price of commodities and the rate of interest began to advance more and more, the imports to exceed the exports, specie to flow out of the country, and the price of stocks and shares to decline. Under the circumstances, *bona fide* trade and industry began to flag and declines and only speculative enterprises flourished. In short, finance and economics were placed in an extremely perilous situation. Various suggestions were advanced in some quarters to remedy this state of affairs. Some suggested that a foreign loan of 50,000,000 *yen* should be raised and the paper money should be redeemed, while others were of opinion that 50,000,000 *yen* premium loan bonds should be issued both at home and abroad, and that the proceeds thus procured should be applied towards redeeming the paper money. These schemes, however, ended in smoke. The Financial authorities decided to accomplish the work of redemption by resorting to ordinary measures, in other words by means of revenue surplus and by setting apart every year a certain amount of reserves for this purpose. The work of redemption carried out in pursuance of that praiseworthy resolution the Government began from the 14th year. At the same time the Government established a central bank, with the object of facilitating the smooth circulation of money. All these judicious measures adopted by the Government soon made themselves felt on the market. This condition of economic affairs underwent a marked change for the better, and paper money gradually rose again to par. The restoration of the relative value of paper money naturally caused a reaction. Market prices began to fall, business to droop, and the money market to slacken. Complaints about business depression were heard throughout the country. However this reaction was a temporary phenomenon and soon passed away.

From the 19th year in which year the successful adjustment of paper currency was accomplished, to the outbreak of the war with China in the 27th, there took place a quiet and orderly progress in the condition of monetary circulation of the country.

In the 23rd year, there was indeed a short period of stringency as the result of an excess of the imports over the exports by about 25,000,000 *yen*, and in consequence of the poor crops of rice in the previous year, so that in February of the year the average rate of discount in the money market of Tokyo stood upon daily balance at 3.1 *sen* per 100 *yen*. Yet after this, the rate of interest became reduced gradually, until in June, 26th year, the average discount rate stood upon daily balance at 1.7 *sen* per 100 *yen*,—the market price of the Government Consolidated Loan Bonds ranging between 108 *yen* and 110 *yen*. All this while, the foreign trade of the country was always in our favor, and the increasing number of men became engaged in new industrial enterprises, as an effect of the rise of prices caused by the fall in the price of silver. In the latter half of the 26th year, however, the rate of interest commenced to rise, from the increasing demand for capital caused by new industrial undertakings. But the rise in the rate of interest was especially marked in the early part of 27th year when grave disturbance arose in Korea, and the average rate of discount stood upon daily balance at 2.7 *sen* or more per 100 *yen* in August of the same year, on the breaking out of the war with China. During the war, all new industrial undertakings ceased, the mind of the whole nation being absorbed with it. But with the restoration of peace after successive victories on our side and the signing of the Treaty of Shimonoseki, the tightness of the money market during the war, owing to the issuing of the war-loan, &c., began to slacken,—the average rate of discount falling, in October, 28th year, to below 2.5 *sen* per 100 *yen* upon daily balance. At the same time, the prices kept on rising, being caused by the depreciation of silver which kept on increasing since the 26th year; so that apparently a bright propect was presented for new industrial enterprises. Added to this, the expectation that the Chinese indemnity of 230,000,000 taels would be soon transported home, thus supplying plentiful capital to our money market, brought about reaction, from the state of temporary cessation of all undertakings during the war, to that of great industrial expansion immediately succeeding the war. The prices of shares and stocks rose remarkably, which led to the formation of new companies or the addition of capital to

old companies. The excited state of the money market of this time may be judged from the fact that the rights for stocks, for which but few *yen* as earnest money had been paid in, usually commanded high prices. The state of things being such, the total amount of capital subscribed for new companies or for the expansion of old undertakings during the 27th year stood at some 339,840,000 *yen*. When to this was added the amount which had been already subscribed for similar objects, it was calculated at the time, that the total capital invested in industrial enterprises would come up to the immense sum of about 939,540,000 *yen*. It was apparent, however, that it was beyond the economic resources of the nation to meet such an immense and sudden demand for capital. Besides, owing to the decrease in our export trade with the United States of America, on account of the prevailing economical distress in that country, and to the increased purchasing power of the lower classes of our people, a result of the war time disbursements by the Government, as well as to the increased demand for machineries and and raw materials used in manufacture, a necessary accompaniment of the sudden industrial expansion,—owing to these causes, there was in the 28th year an excess of imports over exports by about 53,830,000 *yen*; while in the following year again there was a larger excess of imports over exports—by about 56,150,000 *yen*—owing to a remarkably increased importation of rice on account of the poor crops of rice in the preceding year and the increased importation of machineries and raw materials.

Such being the economic condition of the country, the rate of interest kept on steadily rising since about August of 29th year: in December of the same year, the average discount rate in Tokyo stood upon daily balance at 2.7 *sen* or more per 100 *yen*; in 30th year the rate kept on rising until in December it stood upon daily balance at 3 *sen* or more per 100 *yen*. The stringency of the money market began to be generally felt, so that in the 30th year 101 cases of the bills drawn on the union banks of Tokyo were dishonored, these amounting in money altogether to about 62,500 *yen*. Unfortunately the rice crops in the fall of 30th year were even poorer than in the previous year and there took place also the increased imports to take advantage of the

old tariff rates in view of the coming into operation of the new tariff regulations. These things combined to bring up the excess of imports over exports to about 111,740,000 *yen*. The tightness of the money market grew greater and the rate of interest became higher, so that between April and May, 31st year, the average discount rate in Tokyo stood upon daily balance at 3.2 *sen* per 100 *yen* and the Consolidated Loan Bonds showed the signs of depreciating to below 90 *yen*. There were during the first half of the same year 60 cases of the bills drawn on the union banks of Tokyo, amounting to about 514,000 *yen*, which could not be collected.

It is not surprising that under these circumstances there should happen a number of cases of newly established companies or old companies with expanded capital which could not command the payment of promised subscriptions. And the trade in general became greatly depressed on account of the poor crops of rice happening during successive years. The consequence was the demands for manufactured goods decreased. For these reasons, many industrial companies found exceedingly difficult to maintain themselves, and the spectre of a panic stared at our economic community. The Finance Minister at the time, now decided to employ the remaining portion of the Chinese indemnity for relieving the prevailing distress, and subscribed some 3,740,000 *yen* to the debentures issued by the Industrial Bank of Japan, and instructed the Bank to make loans to companies having promising prospects. Moreover, the Government bought up from the market the loan bonds to the amount in face value of about 38,700,000 *yen*. Thus was our economic community barely saved from an impending catastrophe.

After this, the money market became easier and the rate of interest showed a tendency to fall. In December, 31st year, the average discount rate in Tokyo stood upon daily balance at about 2.8 *sen* per 100 *yen*; and in January, 32nd year, it stood at 2.7 *sen*, becoming still less in September, namely 2 *sen* per 100 *yen*, owing to the rich rice harvest in the fall of 31st year, and the restoration of parity between the imports and exports in the foreign trade on account of the increased export of silk, *habutaye*, copper, etc., in 32nd year.

This encouraging state of affairs seemed to continue to exist in

October as in September, when, owing to the Transvaal difficulties, the stringency of the money market became manifest in England, the very centre of the world's money market. The Bank of England commenced raising its rate of interest and to absorb gold into its coffers, and India also, in view of its intended adoption of the gold standard, began to take steps to absorb gold. There commenced now in October and November, the export of gold from this country to India. These things led the Bank of Japan to raise its rate of discount on November 10th, from 1.6 *sen* per 100 *yen* upon daily balance to 1.7 *sen*, which further led the general discount rate in Tokyo to be raised in the same month on an average to 2.3 *sen* per 100 *yen*. The money market was now getting tighter and, on the 27th day of the same month, the Bank of Japan again raised its discount rate to 1.9 *sen* per 100 *yen* upon daily balance. The latter fact was, however, misunderstood by the public and the rumor spread throughout Tokyo that the Bank of Japan ceased to make loans. At this, there spread considerable alarms and, for three or four days, the prices of stocks and shares underwent a rapid depreciation and there seemed at one time that some sort of panic was impending. The real situation of monetary matters, however, soon became known and the market returned to its normal condition. Yet owing to the after-effect of these disturbances and to the fact that the end of the year was at hand, the tightness of the money market yet continued to prevail and the Bank of Japan was barely enabled to tide over this difficult season by making an excess-issue of its notes.

Coming to the 33rd year we find that the money market continued to tighten, and that the Bank of Japan raised the rate of discount on daily balances to 2.2 *sen* in March, then to 2.6 *sen* in April, and lately to 2.7 *sen* in July. This was the highest level ever reached in recent years. This action on the part of the central bank was reflected on the general market, for after July the rate of discount in Tokyo remained at a level of 3 *sen* or even more. The outbreak of the North China trouble in June and the despatch of a large army by Japan introduced another element of disturbance in our economic market. This effect was felt most keenly, by merchants and manufacturers engaged in the export trade to

China, for the exports to North China were completely stopped. The stoppage of the export of spinning yarns involved all these concerned in serious difficulties, and the quotation of negotiable bonds fell to an extent rarely known before. The market did not improve at the beginning of the 34th year, for though the general state of things somewhat changed for the better the business classes, warned by their bitter previous experiences, were vigilantly on their guard, and refrained from undertaking any new projects. The demand for funds declined, and dullness prevailed over the market. At this juncture the 79th Bank and the Naniwa Bank of Osaka which had been struggling against the increasing difficulties collapsed, and with their collapse two or three others were either declared bankrupt or stopped payment. The result was that something like a panic overtook the market of Osaka.

Coming to the second half of the same year we find that the market somewhat recoverd its normal aspect, and what with the activity of the export trade and the satisfactory prospects of the rice crop, the public mind regained more or less its normal composure. Nontheless the economic circles still maintained their cautious mood; the money market continued dull and business could not yet back its normal activity. Circumstances proved even more favorable on entering the 35th year, for the foreign trade was so far satisfactory, relatively speaking, that the excess of imports over exports did not exceed 3,460,000 *yen* against 82,000,000 *yen* approximately in the preceding year. The rice crop too proved a great success and even satisfied the sanguine expectations entertained about it. While circumstances were so favorable both in internal and external relations, economic circles could not yet cease to be on their guard. The absence of any demand for funds has been reflected significantly in the business record of the banks, many of which have been embarrassed as to how to utilize the floating funds that went on accumulating. The result was a decline in the rate of interest. In March the Bank of Japan lowered the rate of daily discount by 0.2 *sen.* that is to 2½ *sen*, and still further lowered it to 2.3 *sen* in June. The example set by the central bank was followed by all the lesser banks throughout the country, and our market at present remains in this situation. The market

continuing in such an easy condition, is next destined to enter on a period of revived activity and sound development, provided no untoward event happens to disturb it.

Below are appended tables giving the fluctuations of the rate of interest, the market prices of commodities and the quotations of negotiable bonds in recent years.

TABLE I.—Rates of Interest.

Rates of interest throughout the country.

Year.	On loan.		On discount of bills payable at the same place.		On current deposits.		On fixed deposits.	
	Maxi'm.	Mini'm.	Maxi'm.	Mini'm.	Maxi'm.	Mini'm.	Maxi'm.	Mini'm.
	%	%	*sen*	*sen*	*sen*	*sen*	*sen*	*sen*
20th.....	—	—	—	—	—	—	—	—
21st.....	—	—	—	—	—	—	—	—
22nd ...	15.00	8.48	4.25	2.63	—	—	5.68	2.90
23rd ...	15.12	9.42	4.42	2.95	—	—	5.88	3.10
24th.....	14.89	8.94	4.12	2.78	—	—	5.78	3.12
25th.....	14.08	8.43	3.95	2.62	—	—	5.59	3.04
26th.....	13.12	7.60	3.66	2.33	—	—	5.35	2.76
27th.....	13.81	8.83	3.97	2.69	—	—	5.54	3.38
28th.....	13.95	9.21	4.02	2.83	—	—	5.81	3.88
29th.....	13.92	8.95	3.93	2.76	—	—	6.14	4.05
30th.....	13.86	9.68	4.05	2.83	—	—	6.47	4.20
31st.....	14.50	10.46	5.20	3.20	—	—	7.50	4.95
32nd ...	12.90	8.80	3.78	2.51	1.70	1.18	6.90	5.70
33rd.....	14.10	9.80	4.00	2.79	1.78	1.28	7.50	6.00
34th.....	14.40	11.60	4.06	3.35	1.81	1.49	7.70	6.80

TABLE II.—Rates of Interest.

Official rates of interest of the Bank of Japan.

	On loans.		On discount of bills payable in Tokyo.		On discount of bills payable at other places.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	sen	*sen*	*sen*	*sen*	*sen*	*sen*
20th.....	1.61	1.37	1.60	1.50	1.80	1.65
21st.....	1.94	1.51	1.85	1.50	2.00	1.65
22nd ...	1.92	1.70	1.90	1.60	2.10	1.65

	On loans.		On discount of bills payable in Tokyo.		On discount of bills payable at other places.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	sen	*sen*	*sen*	*sen*	*sen*	*sen*
23rd ...	1.92	1.78	1.90	1.65	2.10	1.90
24th.....	2.10	1.75	2.00	1.70	2.20	1.85
25th.....	1.75	1.65	1.80	1.60	1.85	1.75
26th.....	1.70	1.30	1.70	1.30	1.90	1.40
27th.....	2.20	1.70	2.10	1.70	2.30	1.90
28th.....	2.20	2.00	2.10	1.90	2.30	2.20
29th.....	2.10	2.00	2.00	1.90	2.30	2.20
30th.....	2.50	2.10	2.20	2.00	2.50	2.30
31st.....	2.70	2.30	2.40	2.00	2.70	2.30
32nd ...	2.30	1.80	2.00	1.60	2.30	1.90
33rd ...	2.70	2.20	2.40	1.90	2.70	2.20
34th.....	2.70	2.70	2.40	2.40	2.70	2.70

TABLE III.—Rates of Interest.

Rates of interest of the Tokyo Bankers' Association.

Year.	On loans.		On discount of bills payable in Tokyo.		On current deposits.		On fixed deposits.		
	Maxi'm.	Mini'm.	Maxi'm.	Mini'm.	Maxi'm.	Mini'm.	One year.	Six months.	Three months.
	sen	*sen*	*sen*	*sen*	*sen*	*sen*	*sen*	*sen*	*sen*
20th...	3.01	1.95	3.48	1.72	0.95	0.94	4.71	4.68	4.70
21st ...	3.29	2.19	3.31	1.95	1.10	0.49	5.41	4.66	3.44
22nd...	3.29	2.19	3.46	2.17	1.15	0.82	5.70	4.74	3.74
23rd...	3.33	2.47	3.63	2.27	1.10	0.82	5.95	5.24	4.36
24th...	3.04	2.21	3.50	1.70	1.29	0.55	6.00	5.08	3.94
25th...	2.52	2.02	3.30	1.70	1.23	0.77	5.78	4.35	3.23
26th...	2.54	1.55	2.59	1.40	1.11	0.51	4.72	4.25	3.59
27th...	2.96	2.13	3.70	2.14	1.15	0.79	4.46	4.91	4.27
28th...	2.93	2.32	3.23	2.32	1.23	0.92	5.93	5.37	4.77
29th...	2.93	2.28	3.00	2.25	1.31	0.98	6.05	5.49	4.94
30th...	3.26	2.55	3.19	2.53	1.50	0.99	6.44	5.89	5.31
31st ...	3.34	2.75	3.48	2.67	1.84	1.31	7.35	6.97	6.43
32nd...	2.93	2.00	3.10	1.89	1.79	1.20	6.62	6.26	5.93
33rd...	3.39	2.43	3.36	2.33	1.80	1.33	7.19	7.01	6.68
34th...	3.56	3.02	4.19	2.89	1.82	1.62	7.56	7.38	7.10

TABLE.—II.—Prices of Principal Commodities.

(unit of *yen*.)

Kind of Commodities.	20th.	21st.	22nd.	23rd.	24th.
Rice per 1 *koku*...	4.710	4.370	5.560	8.150	6.860
Barley ,, ...	2.360	2.150	2.460	3.730	3.650
Soja-beans ,, ...	4.070	3.960	4.920	5.450	5.120
Table-salt ,, ...	1.190	1.060	1.480	2.060	1.550
Soy... ,, ...	8.290	8.310	8.950	9.370	9.110
Sake ,, ...	13.930	12.870	13.450	14.380	14.240
Tea... per 100 *kin*...	26.090	24.480	24.660	25.670	25.470
Leaf-tobacco... ,, ...	8.480	8.620	8.810	9.670	9.120
Japanese white sugar ,, ...	8.770	8.610	9.540	9.890	8.620
Foreign white sugar ,, ...	7.750	7.850	9.010	8.660	7.810
Japanese brown sugar ,, ...	6.180	5.950	6.390	6,780	6.020
Foreign white sugar ,, ...	5.020	5.170	5,580	5,490	5.360
Japanese ginned cotton ... ,, ...	18.520	19,230	21.650	20,190	18,720
Foreign white sugar ,, ...	16.640	18.870	19.310	17.870	17.480
Japanese cotton yarn ,, ...	31.040	32.370	31.630	28.176	26.270
Foreign white sugar ,, ...	30.830	31.520	30.540	29.610	27.480
White cotton cloth per 1 *tan*...	310	310	320	320	300
Foreign grey shirtings... per 100 *kama*...	—	—	2.380	2.390	2.330
Raw silk { superior per *kin*...	—	—	—	—	—
Raw silk { medium ,, ...	—	—	—	—	—
Raw silk { inferior ,, ...	—	—	—	—	—
Kaiki (silk tissue) per 1 *tan*...	2.580	2.579	2.740	2.710	2.670
Hemp... per 100 *kin*...	20.450	19.520	20.990	19.480	19.080
Japanese pig iron... per 1 *kwan*...	230	270	300	240	270
Foreign ,, ... per box containing...	—	—	—	—	—
Petroleum 2 cans...	2.020	2.220	2.270	1.950	1.750
Coal per tom...	3.390	3.860	4.200	4.200	4.380
Fuel per 10 *kwan*...	110	110	130	130	120
Charcoal ,, ...	290	310	350	360	350
Manure { Dried sardine ... ,, ...	1.580	1.570	1.630	1.840	1.180
Manure { Residue of herring oil ,, ...	—	—	—	2.200	2.060
Manure { Rape-seed oil cake ,, ...	—	—	—	—	—

Kind of Commodities.	25th.	26th.	27th.	28th.	29th.
Rice per 1 *koku*...	7.000	7.080	8.240	8.210	9.160
Barley ,, ...	3.310	3.350	3.750	3.800	3.570
Soja-beans ,, ...	5.060	5.470	5.670	5.870	6.420
Table-salt ,, ...	1.460	1.340	1.200	1.390	2.440
Soy... ,, ...	9.380	8.830	9.130	9.570	10.710
Sake ,, ...	14.240	14.030	15.320	17.230	19.960
Tea... per 100 *kin*...	28.660	26.770	30.020	30.260	33.340
Leaf tobacco... ,, ...	10.910	12.880	12.710	14.200	12.920

Kind of Commodities.		25th.	26th.	27th.	28th.	29th.
Japanese white sugar ...	...per 100 *kin*...	9.260	10.020	10.770	10.350	11.120
Foreign white sugar	„ ...	8.070	8.780	9.710	9.370	9.760
Japanese brown sugar	„ ...	6.470	6.960	7.380	7.290	7.900
Foreign white sugar	„ ...	5.570	5.960	6.410	5.810	6.620
Japanese ginned cotton ...	„ ...	18.890	19.730	19.280	20.390	22.610
Foreign white sugar	„ ...	17.750	19.560	19.410	19.680	21.470
Japanese cotton yarn	„ ...	26.950	28.350	29.200	31.540	31.190
Foreign white sugar	„ ...	28.580	30.780	37.430	37.840	37.210
White cotton cloth	per 1 *tan*...	310	310	300	300	320
Foreign grey shirting ...	per 100 *kama*...	2.480	2.630	2.920	3.140	3.080
Raw silk superior	per *kin*...	—	—	—	—	—
Raw silk medium	„ ...	—	—	629.000	691.000	633.000
Raw silk inferior	„ ...	—	—	—	—	—
Kaiki (silk tissue)	per 1 *tan*...	2.800	2.980	3.050	3.670	3.940
Hemp	per 10 *kin*...	19.660	23.040	23.410	25.120	27.090
Japanese pig iron... ...	...per 1 *kwan*...	260	280	330	380	400
Foreign pig iron ...	per box containing...	—	—	290	290	310
Petroleum	2 cans...	1.810	1.850	1.950	2.380	2.420
Coal	per tom...	3.860	4.540	4.920	4.900	5.210
Fuel	..per 10 *kwan*...	130	180	140	170	190
Charcoal	„ ...	380	430	450	540	630
Manure Dried sardine ...	„ ...	1.740	1.960	2.200	2.260	2.800
Manure Residue of hearing oil	„ ...	2.240	2.420	2.350	2.430	2.980
Manure Rape-seed oil cake	„ ...	—	—	1.600	1.560	1.770

Kind of Commodities.		30th.	31st.	32nd.	33rd.
Rice	per 1 *koku*...	11.810	13.110	9.840	11.320
Barley	„ ...	4.880	6.040	4.460	4.740
Soja-beans	„ ...	7.920	8.780	8.410	8.160
Table salt	„ ...	3.170	2.890	2.410	2.410
Soy...	„ ...	13.330	14.610	15.940	17.410
Sake	„ ...	24.200	28.320	27.440	30.680
Tea...	...per 100 *kin*...	35.520	37.310	34.950	36.360
Leaf-tobacco	„ ...	17.880	30.550	33.120	33.310
Japanese white sugar	„ ...	12.550	12.310	12.350	12.710
Foreign white sugar	„ ...	10.000	10.180	9.790	10.020
Japanese brown sugar	„ ...	9.110	9.280	8.560	9.300
Foreign white sugar	„ ...	6.670	7.350	7.540	7.700
Japanese ginned cotton ...	„ ...	23.870	22.790	24.160	25.820
Foreign white sugar	„ ...	21.460	21.710	22.680	24.910
Japanese cotton yarn	„ ...	31.080	31.410	28.360	30.930
Foreign white sugar	„ ...	37.510	37.750	43.660	52.900
White cotton cloth	per 1 *tan*...	370	350	360	370

Kind of Commodities.		30th.	31st.	32nd.	33rd.
Foreign grey shirting ...	per 100 *kama*...	3.100	3.250	3.500	3.800
Raw silk — superior	per *kin*...	—	—	—	—
Raw silk — medium	„ ...	682.000	705.000	950.000	837.000
Raw silk — inferior	„ ...	—	—	—	—
Kaiki (silk tissue)	per 1 *tan*...	4.460	4.560	5.310	5.130
Hemp	...per 100 *kin*...	27.990	27.990	25.500	31.920
Japanese pig iron	per 1 *kwan*...	420	420	410	490
Foreign „ ...	per box containing...	330	350	390	400
Petroleum	2 cans...	2.310	2.290	2.970	3.140
Coal	per ton...	6.910	7.030	5.[illegible]00	6.350
Fuel	per 10 *kwan*...	240	260	240	250
Charcoal	„ ...	730	720	750	880
Manure — Dried sardine ...	„ ...	3.080	3.640	3.710	3.630
Manure — Residue of herring oil	„ ...	3.220	3.550	3.550	3.820
Manure — Rape-seed oil cake	„ ...	1.850	2.000	2.600	2.210

TABLE III.—Average Daily Wages of Workmen throughout the Country.

(unit of *rin*).

Kind of Profession.	20th.	25th.	27th.	28th.	29th.
Carpenter	224	267	300	312	380
Plasterer	225	268	306	313	379
Stone-mason	250	303	346	359	410
Sawyer	250	257	296	307	361
Shingle roof thatcher	250	249	285	293	354
Tile roof thatcher	243	279	328	325	402
Brick maker	—	—	363	380	394
Mat-maker	218	252	276	297	333
Maker of doors, screens, &c	211	253	281	304	348
Paper-hanger	215	260	283	283	331
Joiner	209	249	287	296	332
Wooden clog maker	—	—	252	235	278
Shoe-maker	—	—	306	315	330
Carriage-builder	—	—	[illegible]	279	306
Tailor (Japanese clothes)	189	220	247	252	296
Do. (foreign clothes)	3[illegible]	359	3[illegible]3	384	438
Dyer	173	203	225	237	257
Blacksmith	217	251	280	280	334
Lacquerer	205	236	278	278	305
Tobacco-cutter	171	211	231	249	284
Compositor	223	220	222	239	262
Gardener	—	—	287	291	329
Male weaver...	127	122	170	182	194

Prices of Commodities.	20th.	25th.	27th.	28th.	29th.
Female weaver	74	83	112	115	132
Day laborer	160	183	204	223	262
Wage per month { Male servant	1.290	1.590	1.660	1.710	2.000
Wage per month { Maid servant	670	850	940	930	1.120
Wage per year { Agricultural laborer (male) ...	—	—	19.320	21.930	25.850
Wage per year { Do. (female).	—	—	10.030	12.180	13.150

Kind of Profession.	30th.	31st.	32nd.	33th.
Carpenter	434	470	506	535
Plasterer	436	461	495	540
Stone-mason	474	509	573	605
Sawyer	430	464	489	533
Shingle roof thatcher	420	448	476	505
Tile roof thatcher...	469	480	543	585
Brick-maker	483	480	446	448
Mat-maker	387	410	421	465
Maker of doors, screens, &c.	396	444	464	505
Paper-hanger	380	425	460	495
Joiner	388	427	469	500
Wooden clog maker	318	351	381	400
Shoe-maker	384	424	454	473
Carriage-buider	352	410	430	465
Tailor (Japanese clothes)	305	339	373	390
Do. (foreign clothes)	461	494	533	558
Dyer	287	308	294	293
Blacksmith	394	413	453	475
Lacquerer	362	388	432	465
Tobacco-cutter	353	367	390	430
Compositor	287	311	348	353
Gardener	404	446	488	513
Male weaver...	225	304	314	325
Female weaver	150	187	186	195
Day labourer	290	327	344	365
Wage per month { Male servant	2.240	2.380	2.590	2.700
Wage per month { Maid servant	1.240	1.360	1.770	1.560
Wage per year { Agriculture laborer (male) ...	28.920	32.170	31.090	32.120
Wage per year { Do. (female)..	15.620	17.240	17.000	17.060

TABLE IV.—Quotations of Principal Stocks and Shares.

(unit of *yen*).

Year.	Consolidated public loan bonds (5%). Face value.	Highest.	Lowest.	War loan bonds (5%). Face value.	Highest.	Lowest.
23rd	100.00	102.05	98.20	—	—	—
24th	100.00	102.80	98.63	—	—	—
25th	100.00	103.80	100.50	—	—	—
26th	100.00	110.70	101.50	—	—	—
27th	100.00	111.45	96.90	—	—	—
28th	100.00	104.00	95.90	—	—	—
29th	100.00	102.35	97.80	100.00	102.35	97.80
30th	100.00	101.65	91.90	100.00	101.65	92.20
31st	100.00	96.00	88.20	100.00	96.02	88.40
32nd	100.00	100.46	93.12	100.00	100.46	93.18
33rd	100.00	95.32	90.00	100.00	95.32	90.00
34th	100.00	90.70	86.20	100.00	90.70	86.20

	Tokyo city bonds (6%). Face value.	Highest.	Lowest.	Bank of Japan shares. Paid up.	Highest.	Lowest.
23rd	—	—	—	100.00	270.00	241.50
24th	—	—	—	100.00	265.00	239.00
25th	100.00	106.20	101.70	100.00	279.50	273.57
26th	100.00	118.00	105.00	100.00	366.00	278.50
27th	100.00	114.20	103.00	100.00	328.00	265.00
28th	100.00	109.00	103.00	150.00	403.00	362.00
29th	100.00	107.00	101.70	150.00	490.00	366.00
30th	100.00	102.80	95.50	150.00	400.00	358.00
31st	109.00	96.88	92.50	150.00	410.00	343.00
32nd	100.00	100.94	95.90	200.00	442.00	343.80
33rd	100.00	99.48	93.20	200.00	442.50	391.00
34th	100.00	94.20	87.30	200.00	430.00	373.50

Year.	Yokohama Specie Bank shares. Paid up.	Highest.	Lowest.	Hypothec Bank shares. Paid up.	Highest.	Lowest.
23rd	100.00	245.00	190.00	—	—	—
24th	100.00	200.00	170.00	—	—	—
25th	100.00	210.92	204.28	—	—	—
26th	100.00	265.00	226.50	—	—	—

Year.	Yokohama Specie Bank shares.			Hypothec Bank shares.		
	Paid up.	Highest.	Lowest.	Paid up.	Highest.	Lowest.
27th	100.00	243.50	200.00	—	—	—
28th	100.00	298.00	215.00	—	—	—
29th	100.00	338.00	210.00	—	—	—
30th	100.00	230.00	173.00	—	—	—
31st	100.00	195.00	163.50	—	—	—
32nd	100.00	293.90	187.35	50.00	68.50	46.50
33rd	100.00	275.40	159.40	50.00	69.00	61.30
34th	100.00	173.80	150.00	50.00	66.50	60.00

Year.	Japan Railway Company shares.			Sanyō Railway Company share.		
	Paid up.	Highest.	Lowest.	Paid up.	Highest.	Lowest
23rd	50.00	97.30	85.30	20.00	20.50	13.70
24th	50.00	86.60	70.50	27.00	22.00	20.20
25th	50.00	83.83	81.79	27.00	23.35	22.53
26th	50.00	146.00	91.60	27.00	37.50	24.80
27th	50.00	104.00	96.00	27.00	34.30	21.70
28th	50.00	117.00	89.00	30.00	63.30	31.80
29th	50.00	121.00	98.50	30.00	63.50	41.00
30th	50.00	101.50	75.80	37.00	52.80	44.00
31st	50.00	77.50	59.00	40.00	54.28	40.00
32nd	50.00	81.94	68.74	47.00	61.74	54.40
33rd	50.00	76.56	66.63	50.00	56.40	48.00
34th	50.00	71.10	66.30	50.00	55.10	49.70

Year.	Kyūshū Railway Company shares.			Kansai Railway Company shares.		
	Paid up.	Highest.	Lowest.	Paid up.	Highest.	Lowest.
23rd	38.00	25.40	17.40	45.00	31.00	20.20
24th	37.00	35.00	30.50	47.00	38.80	31.20
25th	38.00	34.23	33.22	47.00	38.11	36.31
26th	38.00	48.00	34.80	47.00	68.50	43.30
27th	38.00	42.80	31.70	47.00	66.00	42.00
28th	41.00	80.00	44.50	47.00	80.00	46.00
29th	41.00	69.00	54.50	50.00	79.50	57.50
30th	41.00	69.30	49.10	50.00	71.50	50.90
31st	41.00	69.18	51.50	50.00	54.70	40.70
32nd	50.00	71.16	57.00	50.00	56.90	44.10
33rd	50.00	63.00	48.00	50.00	48.84	35.00
34th	50.00	54.00	47.00	50.00	39.90	33.80

Year.	Hokkaidō Coal and Railway Company shares.			Tokyo Tramway Company shares.		
	Paid up.	Highest.	Lowest.	Paid up.	Highest.	Lowest.
23rd	25.00	30.70	6.90	50.00	100.00	70.00
24th	39.00	48.00	38.00	50.00	73.50	43.50
25th	50.00	52,18	48.64	50.00	69.24	65.03
26th	50.00	103.00	58.00	50.00	129.00	78.00
27th	50.00	85.50	60.80	50.00	144.00	90.00
28th	50.00	103.30	77.50	50.00	405.00	123.50
29th	50.00	112.70	79.60	50.00	403.00	240.00
30th	50.00	99.20	82.00	50.00	265.00	190.00
31st	50.00	116.50	77.00	50.00	200.00	110.00
32nd	50.00	108.80	85.00	50.00	256.00	190.00
33rd	50.00	99.60	74.90	50.00	237.00	150.00
34th	50.00	80.70	67.00	50.00	165.00	100.00

Year.	Nippon Yūsen-kaisha shares.			Ōsaka Shōsen-kaisha shares.		
	Paid up.	Highest.	Lowest.	Paid up.	Highest.	Lowest.
23th	50.00	79.00	65.80	—	—	—
24th	50.00	67.00	57.00	—	—	—
25th	50.00	61.66	59.90	—	—	—
26th	50.00	79.50	62.10	25.00	56.50	25.00
27th	50.00	78.50	56.50	25.00	31.60	22.00
28th	50.00	111.00	72.50	25.00	69.80	29.00
29th	50.00	120.00	69.50	25.00	64.00	32.50
30th	50.00	80.30	50.00	25.00	35.80	21.00
31st	50.00	56.90	44.00	25.00	21.20	14.30
32nd	50.00	75.30	55.50	25.00	28.20	16.15
33rd	50.00	69.00	55.08	25.00	26.80	21.00
34th	50.00	76.80	62.00	25.00	24.80	20.60

CHAPTER V.—Banks.

History—Banks.

I. HISTORY.

Prior to the Restoration the people were not in the habit of uniting efforts or capital for the common interest of their business. The only organization that existed at that time in this direction was in the shape of guilds or unions. They were generally organizations by a body of different interests, and the idea was that by holding a general meeting once a year or month, all the people engaged in the same line of business might be brought together, know one another, become friends, and consult their common interests. These organizations were, however, far from flourishing and the scope of their interest was exceedingly limited. The banking organization though of course comparatively insignificant as a regular business served a useful purpose and was not unfit for fulfilling the requirements of the times. The exchange business system was, for instance, comparatively well developed. There existed two kinds of exchange merchants, one class called as "Hon ryogae" and the other known by the name of "Zeni-ryogae." The former, also called "Goyo-ryogae," were a sort of bankers who managed official funds. They kept in custody the taxes, in kind or cash, and settled their accounts for their patrons with bills of exchange. The Mitsui-Gumi (the predecessor of the present Mitsui Firm) and the "Ten People Guild" were the most important establishments of this kind. There was also another set of exchange merchants who undertook the exchange business for the feudal princes. All these may be regarded as the bankers of those days.

Even after the Restoration the bankers who were entrusted with the task of managing official funds were called "exchange merchants for the Treasury," and this fact serves to show how even in former days a certain fixed usage existed in connection with the banking business.

As soon as the Restoration had been consummated the new Government lost no time in adjusting financial matters and in devising measures calculated for the promotion of foreign trade. The first office created to take this business in charge was the Commercial Office, soon after superseded by the Foreign Trade Office which was subjoined to the Financial Office. The Foreign Trade Office approached the the leading merchants in the three cities of Tokyo, Ōsaka, and Kyoto and in the five open ports of Yokohama, Kobe, Nagasaki, Niigata, and Hakodate and persuaded them to issue paper notes convertible into gold. Owing, however, to the absence of a regular system of protection and supervision, the project ended in a failure. In December of the 4th year the Tokyo Chamber applied for permission to establish a bank to be called the Tokyo Bank with a capital of 7,000,000 *yen*, and invested with the privilege of issuing paper money. The application was not entertained owing to the fact that the project was based on the idea of getting the capital both from the Government and people. Though the matter was therefore dropped, it deserves mention as the first attempt towards establishing a bank modelled on the Western system. Meanwhile the Vice-Minister Hirobumi Ito of Finance, now Marquis Ito, who was dispatched to America in the 3rd year had sent home a report on the result of his inquiries into the banking system of that country. Based on that report the Government issued in November of the 5th year the National Bank Regulations, the first legislative measure enacted by the Meiji Government. Four national banks were established under the regulations, which provided, among other things, for the convertibility of the bank notes into gold specie. It soon transpired that the notes could not maintain the convertible system, as the excess issue had caused their depression. The banks therefore were threatened with ruin. It happened that the Government conceived at that time the idea of adjusting the hereditary pension system, and to issue for that purpose the Hereditary Pension Bonds to the extent of over 170 million *yen*. Taking opportunity of this financial measure the Bank Regulations were amended in August, 9th year, the new regulations allowing the banks to use the public bonds as security against their notes and to redeem them with Government notes.

This amendment gave a powerful impulse to the creation of banks, so that within a few years they numbered as many as 153. But as the bank notes were convertible with the Government notes, they were really inconvertible notes.

Under the circumstance, the Government decided to devise measures for adjusting the monetary system, aiming at the inauguration of the convertible notes institution. The first important step taken for accomplishing that great end was another amendment of the National Bank Regulations, and the elaboration of the programme of bank notes redemption to be effected by the 30th year.

The part which the national banks took in the economic development of the country was indeed important. Nor did those establishments fail to profit themselves. That this was so may be proved by the fact that of the 153 national banks existing at that time only six were ordered to dissolve by the Government. Those that wound themselves up voluntarily mostly did so on the expiration of their terms, or as a result of amalgamation with other banks. But by far the greater number availed themselves of the privilege accorded to them by the laws relating to the time-expired national banks and were converted into private banks. By February of the 32nd year the last national bank disappeared from existence, and the national bank system ceased to exist. However the notes that had been circulating for a long period could not be withdrawn from the market all at once, so that the Government proclaimed that it would effect their redemption by December of the 37th year, so that by that time this relic of the old financial system shall have disappeared entirely from the country.

In November of the 12th year, in accordance with the National Bank Regulations, a bank was established at Yokohama with a capital of 3,000,000 *yen*. This bank was intended to supply the banking facilities required by foreign trade and also to issue notes convertible into specie. This was the origin of the Yokohama Specie Bank. However the note-issuing part of the object was not put into effect owing to the fact that it was fraught with grave difficulty in view of the great depreciation at that time of the value of paper money. Consequently the bank has principally devoted itself to supplying banking facilities to export and import merchants, and though at

times it experienced some adversity, its business continued to proper and expand. The result was that its capital was made double in the 20th year, and that, at the same time, the Government placed it under a special legislative arrangement, for its business being distinct in nature from that of an ordinary bank it had been found to be inconvenient to subject it to the same regulations. This consideration led to the promulgation of the Yokohama Specie Bank Regulations. The bank enjoyed greater prosperity than ever under the new arrangement, so that in the 29th year its capital was again doubled and augumented to 12,000,000 *yen*. For the third time, that is in the 32nd year, the capital was again doubled, and it now stands at 24,000,000 *yen*.

Side by side with the national banks there existed no small number of private banks and also establishments which though not officially regarded as banks were engaged in a similar line of business. In the 17th year, these two latter kinds of banks numbered 954 with an aggregate capital of 34,252,735 *yen*. In general all matters relating to these establishments were left to the discretion of the parties concerned, and the local Governors were only allowed to interfere when a breach of the peace was in question or the legitimate development of business threatened. However, in view of a greater increase of the number of such establishments, it was decided to devise some method of controlling and protecting them. It was in pursuance of that end that in August of the 22nd year, the Bank Regulations and the Saving Banks Regulations were drawn up and promulgated, to come into operation from January of the 24th year. With the postponment of the period of putting the Commercial Code into operation, the regulations in question were also postponed, and in the same way when part of the Code was put into operation in July of the 26th year, the two laws were also enforced in July, 27th year. In consequence of the enforcement of the regulations the private banks thus began to become regular banking establishments.

The legislative measures for regulating the banking business having been gradually completed, the banks of all descriptions were able to carry on their business with increasing activity. However the want of suitable arrangements for dealing with cases of amalgama-

tion was regarded as inconvenient, and it was thought that some means for effecting such amalgamation by dispensing with preliminary formalities should be provided. In April of the 29th year, the Law relating to the Amalgamation of Banks was promulgated in the shape of Law No. 85. The law, besides enabling danks by a very simple process to amalgamate with other establishments, has also proved highly beneficial to the general money market. Not a small number of banks have availed themselves of this provision and have been united to other concerns, and it is conceivable that still others will follow their example.

As already described, the amendment of the National Banks Regulations having imparted a powerful impulse to the creation of banks of this description, their number soon reached as many as 153 and the notes issued by them to a big figure of 34,426,351 *yen*. The creation subsequently of the Yokohama Specie Bank further added to this activity of the banking business. One serious defect was the absence of a central organ and of provisions for extending the benefit of monetary circulation throughout the country. The idea of establishing a central bank began to attract the attention of the parties concerned in the 15th year. The time having matured for this scheme, it was enacted on June 27th of the same year as the Bank of Japan Regulations, the bank formally opened to business on October 10th of that year. The objects that underlay the establishment of the bank were manifold, for it was intended to act as a pivot of the national finance, to assist the business of banks throughout the country, to promote the smooth operation of the money market, to regulate the rate of interest, to develop the business of discounting bills, and above all to devise measures calculated to invite the inflow of specie. At the same time the bank had to attend to the equally important business of unifying the currency system of the country by means of the issue of convertible notes and by adjusting the existing monetary system and further to place on a sound basis this vital financial institution of the country. The bank applied itself zealously to all those matters, with the result that its credit steadily strengthened and the scope of its business expanded. The confidence which it enjoyed from the Government has led to its being entrusted, as it is even to-day with the task of administering official

money and this has considerably enlarged the scope of its business. In view of all these considerations, the bank increased its capital from 10,000,000 *yen* to 20,000,000 *yen* in March, 20th year. During the Japan-China war, the bank fulfilled to the satisfaction of the Government the important trust it enjoyed in monetary matters of the country, and discharged its duty with efficiency and success. On the cessation of the war, the bank increased its capital to 30,000,000 *yen* in August of the 28th year; established new branches and agents at several important places in the country and in short made the arrangements required by the expansion of its business. The bank too was given the important task of managing the Indemnity when Japan received it from China, while the part it played in the adjustment of the coinage system was qually distinguished. It is hardly necessary to add that the Bank of Japan enjoys at this moment brighter prospects than ever.

As mentioned above, the bank was invested with the privilege of issuing convertible silver notes, but this issue was for a while suspended as the exercise of such a power was thought premature at the time of the establishment of the bank. It was in the 17th year that the Silver Convertible Notes Regulations were promulgated, to be amended in August of the 21st year. That amendment determined the amount of the specie reserve and of the issue of notes. By the amendment effected in the 23rd year the scope of the two was further expanded. When the gold standard system was adopted by the Government in October 30th year, the silver convertible notes were as a matter of course altered into gold convertible notes. This was a memorable innovation in the history of the finance of the country. Another noteworthy change, though not of equal importance, was the expansion of the amount of specie reserves and of the issue of the notes, for though with the development of economic affairs the scope of monetary circulation and of credit was markedly improved, the demand for currency was largely increased as compared with what it was about the 23rd year. The result was, by Law No. 55 issued in March, 32nd year, the amount of note-issue covered by specie reserves was enlarged, and thus the economic requirements were satisfied.

The banking organs relating to trade having been created one

after another, they numbered in the 29th year 1,500 with the Bank of Japan at the head of the list. In contrast to this satisfactory provision for trade, that relating to agriculture and manufacture still remained unsatisfactory. The banks attending to the interest of those industrial pursuits must be distinct in nature from those for trade, for it is impossible to expect from agriculture and manufacture any success in a short space of time, while the profit derived from the undertakings is incomparatively small. Hence it follows that funds to be used for improving or developing agricultural or manufactural undertakings must be of long term and at a cheap rate. It was long maintained therefore by all those concerned in the matter, that banking organs for promoting the interest of farmers and manufacturers should be established as quickly as possible. At last in April of the 29th year, the Law relating to the Hypothec Bank of Japan and the Law relating to the Local Hypothec Banks were promulgated, the former to act as the central organ and the latter as local organs, and both to attend to the business of supplying loans on long terms and at a cheap rate to farmers and manufacturers with the view of encouraging the development of industrial undertakings. The Hypothec Bank was opened to business on August 2nd of the 30th year with a capital of 10 million *yen*, while the capital of the Local Hypothec Banks was determined to be not less than 200,000 *yen*. From the 31st year the banks of this particular kind were started in many prefectures. Only a few years having elapsed since the creation of those banks, it is not yet possible to say anything definitely as to the effect they produced on agriculture and manufacures. It may safely be stated however that they are conferring an immense benefit on the development of economic pursuits.

The central and local Hypothec Banks being banking organs for making loans principally on real estates, their establishment did not promote to any particular extent the interest of all those who wished to get loans on negotiable bonds. The same reason which demanded the establishment of special banks for farmers and manufacturers therefore demanded the creation of banks to satisfy this special requirement of this special class of people. Indeed the absence of banks of this particular kind was a serious defect in the banking

system of Japan. In the 33rd year, therefore, by Law No. 70, the Law relating to the Japan Industrial Bank was promulgated, and the bank was opend to business on April, 11th, 35th year, with the capital of 10 million *yen*.

Banking facilities for the outlying parts of the Empire have received the proper attention of the authorities. The creation of a special kind of bank for Formosa was a matter of urgent importance, for everything in that island being in an initiatory stage, the exploitation of its resources and the encouragement of economic undertakings demanded banking facilities adopted to the condition of the place. In March of the 30th year the Law relating to the Formosa Bank was passed, the bank to have a capital of 5 million *yen*. It need hardly be stated that the organization of this bank was distinct from that of the banks in Japan proper, and that it was adapted to the special circumstances prevailing in the island. The bank was opened to business on September 26th of the 32nd year.

In a similar way Hokkaido required a banking organ suited for supplying the funds needed in exploiting the land. The result was the promulgation in the 32nd year of the Law relating to the Hokkaidū Colonization Bank. The object of the bank does not differ much from that of the Local Hypothec Banks, only the circumstance prevailing in Hokkaidō being different from those in Japan proper, the creation of a bank of this sort was neccessary for this northern island. For instance while the local Hypothec Banks are mainly devoted to advancing long-term loans on the security of real estate, the Hokkaido bank, besides making loans on real states, accepts agricultural produce and negotiable bonds as objects of security, and also deals with matters relating to the issue of debenture bonds deposits, and advances on good. The capital of the bank is 3 million *yen* and it was opened to business on April 31st of the 33rd year.

The Bank of Japan, the Yokohama Speice Bank, the Hypothec Bank of Japan, the Local Hypothes Banks, the Hokkaido Colonization Bank, the Formosan Bank, and the Japan Industrial Bank have all been established under official protection of one descriptiou or another, and in consequence of that protection more or less restriction is placed on their business operations. For instance the banks

must get the approval of the Government for their articles of association, and must also obtain the approval of the Minister of Finance even in carrying out business operations within their respective legitimate province. Then for efficiently controlling those establishments the authorities sometimes appoint one or two overseers. The Governors, Presidents or Directors are either directly nominated by the Government or indirectly nominated after they have been elected by the general meeting of shareholders of the respective banks. In returns for all these inconveniences, the banks enjoy various privileges sufficient to compensate them.

II. VARIOUS BANKS.

National Banks :—Established in comformity with the National Bank Regulations issued in November of the 5th year in the form of Notification No. 349, the national banks were the first banking establishments that were organized on the Western model.

The main causes that led to the creation of these financial institutions were to supply banking facilities required in trade and also to redeem Government paper money issued to an amount out of proportion to the demand of the market. These banks were organized in the main after the pattern of the American national bank system, and were allowed to issue bank notes convertible in specie. According to the National Bank Regulations the "Kinsatsu" Exchange Bonds which were newly issued for the redemption of the Government paper money in circulation, were to be deposited by national banks as security for the same amount of bank notes issued, which, however, might not exceed 60 per cent. of their capital. Besides they were obliged to keep specie reserve for the redemption of the notes and equal in value to 40 per cent. of their capital, so that two thirds of the notes issued were always covered by specie reserve. But the price of specie was steadily rising at that time, producing a considerable difference between specie and paper, and as soon as the bank notes were issued, so much demand for redemption was made on the banks, that

these notes never obtained any extensive circulation in the market. It was natural that only a few national banks were established and even these were soon placed in a deplorable condition, so much so that the National Bank Regulations could not be upheld in full operation, and the Government was soon induced to introduce some revisions in the Regulations. The amended Regulations were promulgated by Imperial Decree No. 106 of August, 9th year, according to which the national banks were now allowed to place as security for the bank notes the new Hereditary Pension Bonds besides the "Kinsatsu" Exchange Bonds. It ought to be remembered that the Pension Bonds were issued in a large amount at that time and the general depreciation of public bonds was highly probable, unless some special measures were deviced to prevent it. The most important point of amendments was that the obligation of the note-conversion in specie was abolished, so that any kind of Government paper currency might now be kept as reserve for redemption of notes. At the same time the amount of reserve was reduced to 25 per cent. of the capital. These amendments gave a strong impulse to the formation of new national banks, they sprang up so rapidly that the Government was now resolved to check this tendency, by putting a limit to the amounts of notes the banks might issue. Still they kept on increasing from year to year, until at last the general depreciation of paper currency and the unnatural rise of price ensued as the inevitable consequences of this over-issue of bank notes. When about the 11th year the value of paper currency was further falling, and there seemed to be no end of it, the Government decided to make a radical reform in the banking system of the country, and after much deliberation this arduous task was commenced in the 15th year by the creation of the Bank of Japan, aiming at the final replacement of the national bank system by that of the single central bank of issue. In the 17th year the Convertible Bank Notes Regulations were enacted by which the privilege of issuing notes was exclusively lodged in the hands of the Bank of Japan. Meanwhile, certain revisions and additions

were introduced in the National Bank Regulations by Imperial Ordinance No. 14 of 16th year. According to all those amendments the national banks were, on the expiration of their term of charter, to give up their privilege of issue, but might at their option continue as private banks; besides proper measures were introduced to effect by degrees the redemption of their notes, so that no notes might be left on the expiration of the term of charter of all national banks. Two laws were enacted for facilitating the change, one (Law No. 7, 29th year) for the regulations for the the settlement of national banks on the expiration of their term of charter and the other (Law No. 11, same year) being the regulations for the special settlement of national banks prior to it. The latter law induced many national banks to reorganise themselves into private banks as soon as possible; so that only seven national banks remained as such until the expiration of the term of their charter. The last closed its business as bank in February 34th year and thus the change was completed sooner and easier than had been expected.

The Bank of Japan:—The Bank of Japan, the central bank of Japan, was founded in accordance with the Imperial Ordinance for the Bank of Japan (No. 32, issued in the 15th year) in the form of a joint stock company. Its authorized capital was at first 10,000,000 *yen* but was twice increased making the present amount of 30,000,000 *yen* fully paid up.

This bank has the privilege to issue convertible bank notes on the security of gold or silver coins and bullion equal to the amount of the notes issued, and to issue further those notes on the security of Government bonds and Treasury bills, or other bonds or commercial bills of a reliable nature, within the limit of 120,000,000 *yen*. This amount was limited to 85,000,000 *yen* before the 32nd year and to 70 million *yen* before the 23rd year.

The notes issued in excess of the said amount are subject to a tax of 5 per cent. or more per annum of the amount of the same.

The following lines of business are conducted by the bank:—

1. To discount or purchase Government bills, bills of exchange, commercial bills, etc.; 2. to buy or sell gold or silver

bullion; 3. to make loans on the security of gold or silver coins or bullion; 4. to make collection of bills for banks, companies and merchants, who are regular customers; 5. to receive deposits in current accounts and accept the custody of object of value, such as gold, silver, other precious metals and documents; 6. to make advance in current accounts or loans for fixed periods upon the security of Government bonds, Exchecquer bills or other bonds and shares guaranteed by the Government.

In addition, the bank is entrusted with the management of the Treasury fund.

THE YOKOHAMA SPECIE BANK:—The Yokohama Specie Bank was founded in the 12th year with the authorized capital of 3,000,000 *yen* for furnishing financial facilities for the foreign trade of the country. It was at first supported by the Government in various directions, for instance the management of several million *yen* of the Treasury Reserve Fund was entrusted to the bank, and thus an ample amount of capital was put at the disporal of the bank for discounting foreign bills of exchange. In the 15th year, when the Bank of Japan was established, all those kinds of support were withdrawn, and instead of them the Bank of Japan was made to rediscount foreign bills of exchange upon the demand of the Specie Bank to an amount not exceeding 20,000,000 *yen* a year at the rate of 2 per cent. In March 20th year, regulations for the Specie Bank were promulgated (Imperial Ordinance No. 26, 20th year), and at the same time the capital was raised to 6,000,000 *yen*. The consequent growth of its transactions necessitated the further increase of its capital to 12,000,000 *yen* in the same year. In the 32nd year the capital was again doubled, making 24,000,000 *yen* of which 18,000,000 *yen* are now paid up.

The following lines of business are transacted by the bank:—

1. Foreign exchange; 2. inland exchange; 3. loans; 4. deposits of money and custody of objects of value; 5. discount and collection of bills of exchange, promissory notes and other cheques; 6. exchange of coins. The bank may also buy or sell public bonds, gold or silver bullions and foreign coins, if

the condition of business demands it. The bank may also be entrusted with affairs bearing on foreign loans and the management of public money for international account.

THE HYPOTHEC BANK OF JAPAN:—The Hypothec Bank of Japan was founded in the 17th year by Law No. 82 of the same year as a joint stock company of a capital of 10,000,000 *yen* under the special patronage and control of the Government. The object of the bank was, as is still the case, for the purpose of furnishing long-period loan at low rate of interest for improvement and development of agriculture and industry. It is to serve as the central organ of credit for agricultural and industrial enterprises of larger scale throughout the whole country, as local Hypothec Banks are destined for local activity in the same branch of business.

The chief lines of business transacted by the bank are as follows:—

To make loans on the security of immovable property, redeemable in annual instalments within a period of not more than fifty years; to make loans on a similar security, redeemable at a fixed term within a period of not more than five years, provided the total amount of such loans not exceeds one-tenth of the total amount of loans redeemable in annual instalments. (The amount of loans made on the security of any immovable property may not exceed two-thirds of the value thereof, as appraised by the bank); to make loans without security to Prefectures, Districts, Cities, Towns, and other public bodies organized by law; to take up the mortgage debentures of Local Hypothec Banks; to accept the custody of gold and silver bullions and negotiable instruments.

The bank is authorized, when at least one-fourth of its nominal capital is paid up, to issue mortgage debentures up to an amount not exceeding ten times its paid up capital, provided the amount of such debentures does not exceed the total amount of outstanding loans redeemable in annual instalments and the debentures of Local Hypothec Banks in hand. These debentures shall be redeemed at least twice a year by means of drawings in proportion to the total amount of redemption of

loans redeemable in annual instalments in the same year, and the debentures of Local Hypothec Banks in hand. Besides for each issue of debentures, premiums of various amounts varying from ten to one thousand *yen* are allotted to a certain number of the debentures determined by drawings. This is the single exception in the midst of the general prohibition of lottery or any lottery-like system, specially allowed to the Hypothec Bank, in order to attract smaller capitals to the subscription of its debentures.

The Local Hypothec Banks:—The Local Hypothec Banks were established in accordance with the Law for the Local Hypothec Banks (Law No. 84, 19th year) as local organs of credit for the same object as that of the Hypothec Bank, each with a capital of two hundred thousand *yen* or upwards. As a general rule each bank has for its business district the whole part of the prefecture where it is established, each prefecture having one bank, but it is provided that if the circumstances require, a prefecture may be divided into two or more districts in respect of Local Hypothec Banks by special Imperial Ordinance, which provision, however, is not as yet made use of.

The following lines of business are transacted by these banks:—

To make loans on the security of immovable property, redeem able in annual instalments within a period of not more than thirty years; to make loans on a similar security, redeemable in a fixed term within a period of not more than five years, provided the total amount of such loans not exceeds one-fifth of the total amount of loans redeemable in annual instalments. (Loans made on the security of any immovable property may not exceed two-thirds of the value thereof, as appraised by the banks); to make loans on the same conditions without security to Cities, Towns, Villages and other public bodies organized by law, to make loans without security, redeemable in a fixed term within a period of not more than five years to more than twenty persons combined with joint liability, who are engaged in agriculture or industry and whose reliability is recognized; to receive fixed deposit, and accept the custody of gold and silver bullion and negotiable instruments.

Besides, the banks may be entrusted with the receipt and disbursement of the public funds of prefectures. Each of these banks is authorized, when at least one-fourth of its capital is paid up, to issue mortgage debentures, to an amount not exceeding five times its paid up capital. Such debentures may not, however, exceed the total amount of outstanding loans redeemable in annual instalments. The debentures shall be redeemed at least twice a year by means of drawings, in proportion to the amount of the redemption of the said loans. In accordance with the provisions of the Law for givng support to the Local Hypothec Banks (Low No. 84, 19th year), the Government gave over to the prefectures funds for subscription to the shares of the respective Local Hypothec Banks. The amount of the said funds is limited by the law to the proportion of 70 *yen* per 100 *cho* of taxable lands in each prefecture, excepting building sites, mineral spring lots and swamps, and the total amount assigned to each perfecture may, under no circumstances, be more than 3,000,000 *yen*, nor it may exceed one-third of the paid up capital of each bank.

The Hokkaidō Colonization Bank:—The Hokkaidō Colonization Bank has or its object the promotion of enterprises of colonization and exploitation of Hokkaidō, as is indicated by its name. It was established by the Law relating to the Hokkaidō Colonization Bank (Law No. 76, 22nd year) in the form of a joint stock company with a capital of 3,000,000 *yen*, and is allowed to transact the following lines of business:—

To make loans redeemable in annual instalments within a period of not more than thirty years, or redeemable at a fixed term within a period of not more than five years, on the security of immovable property; to make loans against the pledge of shares and debentures issued by joint stock companies, the object of which is no the same line with the bank, and to take up debentures of said companies up to an amount not exceeding one-fifth of the total sum of outstanding loans above mentioned; to make loans or issue bills of exchange on the security of the agricultural products in the island; to take up

deposits; to accept the custody of objects of value; to make loans without security redeemable in annual instalments or at fixed period to *Ku* (district), *Cho* (town) and *Son* (village) where the Law of the *Ku*, *Cho* and *Son* of Hokkaidō is in operation and other public bodies organized by law. This bank is authorized to issue mortgage debentures to an amount not exceeding five times its paid up capital. The debentures, however, may not exceed the total amount of outstanding loans redeemable in annual instalments. The debentures shall be redeemed at least twice a year by means of drawings, in proportion to the total amount of repayment of said loans.

In order to give support to the bank, the Government subscribed 1,000,000 *yen* of its shares and for the first ten years the dividends on these shares are to be added to the reserve fund of the bank.

The Bank of Formosa:—The Bank of Formosa was created by the Law of the Bank of Formosa (Law No. 38, 30th year) for the purpose of promoting the economical development of the island. It is a joint stock company of a capital of five million *yen*, and is endowed with the privilege of issuing bank notes convertible in silver *yen* against the reserve of gold or silver coins or bullion and Government bonds, treasury bills, notes of the Bank of Japan, any other negotiable papers or commercial bills of reliable nature. The amount of notes not covered by specie reseve is limited to 5,000,000 *yen* and may in no case exceed the amount of notes issued against specie reserve. Notes issued beyond this limit in case of emergency are subject to a tax of five per cent. or more per annum. The Government has subscribed one million *yen* of the shares of the bank and the dividends accruing from these shares are added to the reserve fund of the bank for the first five years, for which period the Government is engaged not to transfer its shares. The Government has further made an advance of 2,000,000 *yen* in silver to the bank with no interest, which are added to the specie reserve for bank notes issued.

The following lines of business are transacted by this bank:—

1. To discount bills of exchange and other commercial bills; 2. exchange business; 3. to collect bills for companies

and merchants who are regular customers of the bank; 4. to make loans on the security of immovable or movable property of a reliable nature; 5. to open current accounts, 6. to accept the custody of objects, of value, such as gold and silver coins, precious metals and documents; 7. to buy or sell gold or silver bullion; 8. to act as agent for other banks.

The Industrial Bank of Japan:—The Industrial Bank of Japan established in April of the 35th year in accordaace with the Law of the Industrial Bank of Japan (Law No. 70, 33rd year) promulgated in that year, is a joint stock company with a capital of 10,000,000 *yen* of which 2,500,000 *yen* are paid up. As the Hypothec Bank and the Local Hypothec Banks are intended to furnish long and cheap loans on the security of immovable property for agricultural and industrial enterprises, especially for the former, the Industrial Bank has for its special object to handle with bonds and shares of various kinds. It may be regarded as a kind of crédit mobilier, while the former are crédits fonciers with special forms and purposes.

The business allowed to the bank by the law comprises

1. To make loans against the pledge of public loan bonds, local loan bonds, companies' debentures and shares; 2. to subscribe or make up public loan bonds, local loan bonds and companies' debentures; 3. to accept deposit of money and custody of valuable objects; and 4. to transact various kinds of trust business with local loan bonds companies' debentures and shares.

Thus, loans without security or on the security of other than negotiable papers and discounts of bills are not within the scope of the bank's business. In order to enable it to obtain necessary amount of capital for carrying out its object, the bank is also endowed with the privilege of issuing debentures to an amount of five times its paid up capital, which, however, may not exceed the total amount of advances made by the bank, the local loan bonds and companies' debentures appropriated by it. Besides, for the first five years the dividend

of 5 per cent. of its paid up capital is guaranteed by the Government.

The seven kinds of banks above mentioned, the Bank of Japan, the Yokohama Specie Bank, the Hypothec Bank, the Local Hypothec Banks, the Hokkaidō Colonization Bank the Bank of Formosa and the Industrial Bank of Japan, are banks established under the special patronage of the Government each with some special object as is mentioned before under the head of each of these banks. While the nature of business is more or less limited corresponding to the object for which they were founded, they are all endowed with some privileges more or less lucrative, which may more than compensate the disadvantages of this limit put on the sphere of their action. At the same time they are subject to the strict control of the Government, for not only their statutes but also particular cases of their action as are pointed out in the laws are subject to the special permission of the Minister of Finance. Besides, one or more special commissioners are appointed for each of these banks to supervise the course of their business and make report on it to the Minister. The governors, presidents and directors of these banks are either directly appointed by the Government or approved by the latter after they have been elected at the general meetings of the banks.

Ordinary Banks:—At the beginning of the Meiji era, there were no regulations so far as ordinary banks were concerned, except that their establishment was subject to the special permission of the authorities. Under such a system or want of system, much inconvenience was felt by the Government in the way of the administrative control of those institutions, and the issue of regulations to deal with ordinary banks was called for repeatedly, but this desire was long not fulfilled. It was in the 23rd year, that the general regulations for trade companies were first established through the promulgation of the Commercial Code, and the Laws for Ordinary Banks and for Savings Banks were also issued (Law Nos. 11 and 75, 23rd year) which were to go into force simultaneously with the Commercial Code on 1st June, 24th year, but the operation of the

Code being twice postponed, the two laws were also not enforced. Subsequently after introducing certain amendments in the Commercial Code and its Executive Law in 25th year their operation was announced to run from 1st July of the same year, and the two laws in question also came into force from the same date. By the new law, ordinary banks were put under the control of the Minister of Finance, the permission of the said Minister being required for the establishment of a new bank; he is also empowered to order at any time investigations into the conditions of the business and the property of the bank. Besides, provisions are made for the business hours and holidays, the obligation of making report on business and the publication of property list and balance sheet in newspapers for each half year, etc.

Savings Banks:—According to the present law, for Savings Banks which came into force on 1st July, 26th year, as is mentioned under the head of "Ordinary Banks," Savings Banks must be joint stock companies of a capital of more than 30,000 *yen*. They may take up minor deposits from the general public on a compound interest system but to prevent total unexpected loss for depositors, they have to consign to the Deposit Office national or local loan bonds bearing interest, corresponding in value to one-fourth of the deposts received, for which the depositors concerned have a preferencial right. In case, however, the national or local loan bonds consigned exceed in value one half of the capital of the bank consigning them, the excess may be replaced by commercial bills or other reliable shares and stocks of any company. In other respects the regulations for ordinary banks apply also to savings banks.

BANKS.

TABLE I.—National Banks.

DEPOSITS.

(unit of *yen*).

Year.	Number of Banks.	Authorized Capital.	Paid up Capital.	Deposits. Government Funds and Public money. Amount transacted.	Balance.
6th... ...	3	3,200,000	3,200,000	—	7,680,022
7th... ...	4	3,450,000	3,450,000	—	3,668,520
8th... ...	4	2,450,000	2,450,000	—	1,917,433
9th... ...	11	20,505,799	20,505,799	—	834,235
10th... ...	37	24,528 600	24,528,600	—	1,768,631
11th... ...	139	38,851,150	38,851,150	—	2,466 215
12th... ...	152	42,111,100	42,111 100	92,648,182	3 508.297
13th... ...	150	43,216,100	43,216,100	107,460,729	4,230,065
14th... ...	148	43,996,100	43,996,100	146,174.173	4 382,322
15th... ...	143	44,206,100	44,206,100	141,907,452	6,305,399
16th... ...	141	44,386,100	44,386,100	166,3 ;1,765	6 594.430
17th... ...	140	44 536,100	44,536,100	195,258,008	6,342,813
18th... ...	139	44 456,100	44,456,100	220,809 633	10,202,949
19th... ...	132	43,556,100	43,556,100	261,364,607	11,649,625
20th... ...	136	45.838,851	45.838,851	218,552,635	11,879,046
21st	135	46,877,639	46,877,639	216,452,158	10,096,462
22nd ...	134	47,681,380	47,681,380	184,705.818	10,058,015
23rd... ...	134	48,644,662	48,644 662	149,284 488	4,830,262
24th... ...	134	48,786 100	48,701,100	73,762,195	7,541,589
25th... ...	133	48,325,600	48,325,600	91,271,196	8,072,448
26th... ...	133	48.416,100	48,416,100	89,692,591	8,693.729
27th... ...	133	48,816,100	48,816,100	106,980,408	9,035.878
28th... ...	133	49,056,100	48,951,100	113,931,217	7,542,860
29th... ...	121	44 766,100	44,761,770	97,122,281	6,634,354
30th... ...	58	13,630,000	13,630,000	68 668,021	2,877.680
31st	4	390,000	390,000	12,211,930	122,142

DEPOSITS.

Year.	Fixed and current Deposits.		Savings Deposits.		Total.	
	Amount transacted.	Balance.	Amount transacted.	Balance.	Amount transacted.	Balance.
6th... ...	—	2,593,128	—	—	—	10,273,204
7th... ...	—	2,298,918	—	—	—	5,967,438
8th... ...	—	2,399,801	—	—	—	4,317,234
9th... ...	—	2,397,047	—	—	—	3,231,282
10th... ...	—	4,871,890	—	1,964	—	6,642,485
11th... ...	—	8,794,852	—	4,735	—	11,265 802
12th... ...	217,305,983	11,382,587	39,445	18,504	309,993,610	14,909,388
13th... ...	252,579,031	13,197,296	193,330	134,855	360,233,090	17,562,216
14th... ...	274,713,429	13,965,315	766,991	338,023	421,654,593	18,685,660
15th... ...	281,476,169	12,951,828	1,080,037	443,832	424 463,658	19,701,059
16th... ...	238,377,726	16,978,010	1,752,636	775,750	406,462,127	24,348,290
17th... ...	229,073,791	15,713,065	2,352,379	937,692	426,684,178	22,993,570
18th... ...	311,720 307	19,631,362	2,635,865	1,081,008	435,165,805	30,915,319
19th... ...	257,023,615	23,273,820	3,584,293	1,542,563	521,872,515	36,466,008
20th... ...	313,730,621	25,081,168	4,294,557	1,727,908	536,577,813	38,688,122
21st	341,554,692	26,594,806	4,999,390	2,062,600	563,006,240	38,753,868
22nd ...	406,092,662	27,990,393	6,617,851	2,546,837	597,416,331	40,595,245
23rd... ...	416,877,760	27,478,390	7,542,891	1,289,514	573,705,139	33,598,156
24th... ...	432,067,983	31,223 985	3,739,010	1,448,820	506,569,188	40,214,394
25th... ...	545,848,096	40,173,664	4,155,666	1,730,853	641,274,958	49,976,965
26th... ...	693,866,385	51,139,881	1,730,853	53,521	785,289 829	59,887,131
27th... ...	807,346,127	57,941,263	—	—	914,326,535	66,977,141
28th... ...	986,032,332	67,456,530	—	—	1,299,963,549	74,999,390
29th... ...	911,968,640	55,191,265	—	—	1,009,090,921	61,825,619
30th... ...	562,938,651	24,888,519	—	—	631,606,672	27,766,196
31st	147,066,080	745,077	—	—	159,277,980	867, 219

TABLE II.—National Banks.

LOANS.

(unit of *yen*).

ADVANCES.

Year.	Loans to the Government.		Other advances.	
	Amount transacted.	Balance.	Amount transacted.	Balance.
6th	—	—	—	2,892,929
7th	—	—	—	2,383,932
8th	—	19	—	2,460,179
9th	—	6,210,181	—	3,899,493
10th	—	12,076,207	—	6,360,048
11th	—	15,436,967	—	16,393,097
12th	—	15,455,337	131,121,044	24,826,439
13th	15,621,163	15,378,751	162,138,466	28,131,990
14th	16,720,748	15,421,098	197,595,636	30,330,274
15th	15,695,303	15,373,134	189,575,983	32,161,869
16th	15,495,865	10,366,299	160,868,799	32,346,236
17th	10,650,254	10,394,282	156,405,021	35,615,271
18th	10,899,395	10,509,277	137,233,879	32,734 003
19th	10,758,822	10,754,702	150 313,318	35,062,507
20th	10,625,413	10,296,041	188,737,616	44,871,519
21st	10,509,000	10,280,471	222,478,384	49,104,407
22nd	10,504,903	10,262,301	368,633,232	57,976,593
23rd	10,320,480	—	303,827,963	71,697,231
24th	10,000,000	10,000,000	286,691,829	66,173,259
25th	10,000,000	10,000,000	308,389,960	61,905,652
26th	10,000,000	10,000,000	474,117,505	80,013,852
27th	10,000,000	10,000,000	450,819,214	86,151,515
28th	8,000,000	8,000,000	518,363,525	91,897,575
29th	—	—	523,411,974	105,720,154
30th	—	—	274,158,846	28,264,169
31st	—	—	58,551,264	606,749

ADVANCES.

Year.	Bills discounted.		Total.	
	Amount transacted.	Balance.	Amount transacted.	Balance.
6th	—	3,430	—	2,896,359
7th	—	3,245	—	2,387,177
8th	—	130,635	—	2,590,833
9th	—	58,259	—	10,167,933
10th	—	31,772	—	18,468,072
11th	—	94,875	—	31,924,939
12th	9,868,363	383,115	—	40,664,891
13th	20,947,189	1,283,593	198,706,818	44,794,334
14th	27,544,285	1,133,705	241,860,669	46,891,077
15th	26,132,094	1,467,089	231,403,380	49,002,092
16th	25,634,033	2,170,684	201,998,697	44,901,219
17th	38,536,382	3,600,346	205,591,657	49,009,899
18th	27,883,651	3,069,066	176,016,925	46,321,346
19th	43,365,569	3,772,291	204,437,709	49,589,500
20th	67,942,433	5,299,158	267,305,462	60,466,718
21st	78,386,614	7,572,743	311,373,998	66,957,621
22nd	99,775,103	8,306,531	378,913,238	76,545,525
23rd	111,425,607	—	425,574,050	—
24th	124,468,416	—	421,116,245	—
25th	158,456,633	—	476,846,623	—
26th	229,439,293	—	613,656,798	—
27th	275,353,347	—	736,172,561	—
28th	290,064,409	26,305,513	816,427,934	126,203,088
29th	308,773,414	20,168,813	832,185,388	125,888,967
30th	176,684,760	—	450,843,606	—
31st	55,958,225	341,046	114,509,489	947,795

TABLE III.—Bank of Japan.

DEPOSITS.

(unit of *yen*).

Year.	Authorized Capital.	Paid up Capital.	Deposits. Government Funds and Government Deposits. Amount transacted.	Balance.
15th	10,000,000	2,000,000	—	—
16th	10,000,000	4,000,000	21,908,811	4,696,436
17th	10,000,000	5,000,000	131,718,159	14,360,228
18th	10,000,000	5,000,000	204,873,886	31,581,618
19th	10,000,000	5,000,000	443,024,929	36,500,155
20th	20,000,000	10,000,000	642,670,941	31,206,958
21st	20,000,000	10,000,000	612,073,872	25,572,502
22nd	20,000,000	10,000,000	642,981,456	31,631,494
23rd	20,000,000	10,000,000	40,663,208	811,239
24th	20,000,000	10,000,000	49,066,469	2,483,701
25th	20,000,000	10,000,000	57,631,953	4,085,444
26th	20,000,000	10,000,000	50,251,233	1,618,327
27th	20,000,000	10,000,000	70,591,897	3,192,232
28th	30,500,000	22,000,000	118,812,360	4,714,539
29th	30,500,000	22,000,000	412,373,330	193,709,354
30th	30,500,000	22,000,000	925,123,261	74,288,063
31st	30,000,000	30,000,000	710,205,718	25,713,412
32nd	30,000,000	30,000,000	540,458,915	69,732,850
33rd	30,000,000	30,000,000	217,533,432	33,230,790
34th	30,000,000	30,000,000	374,069,114	17,569,292

DEPOSITS.

Year.	Private Deposits:		Total.	
	Amount transacted.	Balance.	Amount transacted.	Balance.
15th	647,612	305,613	647,612	305,613
16th	15,293,608	1,707,951	37,209,419	6,404,387
17th	27,889,193	759,131	159,607,352	15,119,359
18th	13,884,219	1,324,069	218,758,102	32,905,687
19th	22,712,368	329,450	465,737,297	32,829,605
20th	27,574,974	677,981	670,245,915	31,884,939
21st	39,979,793	665,865	652,053,665	26,238,367
22nd	19,876,981	242,808	662,858,437	31,674,302
23rd	159,320,310	6,315,287	199,985,518	7,126,526
24th	138,352,867	3,246,794	187,419,356	5,730,495
25th	219,359,557	4,706,974	276,991,510	8,792,418
26th	261,998,049	1,969,578	312,249,282	3,587,905
27th	271,152,072	1,726,291	341,743,969	4,918,523
28th	421,853,071	1,939,370	440,665,431	6,653,909
29th	964,835,605	1,408,318	1,377,208,935	195,117,672
30th	1,039,822,453	3,821,937	1,964,945,714	78,110,000
31st	1,015,199,006	1,497,135	1,725,404,724	27,210,547
32nd	1,282,760,830	4,938,725	1,823,219,745	74,671,575
33rd	1,756,602,168	2,027,234	1,974,135,600	35,258,024
34th	1,627,032,997	2,557,762	2,001,102,111	20,157,054

TABLE IV.—Bank of Japan.

(unit of *yen*).

LOANS.

Year.	Loans to the Government.		Other loans.	
	Amount transacted.	Balance.	Amount transacted.	Balance.
15th	—	—	935,000	777,300
16th	1,500,000	1,000,000	4,827,050	691,700
17th	2,000,000	—	6,198,775	1,412,795
18th	10,159,000	1,050,000	35,793,962	13,971,824
19th	2,414,710	566,687	63,732,702	19,189,875
20th	2,899,035	1,854,603	83,092,912	25,181,924
21st	8,735,141	3,538,972	95,071,157	19,175,024
22nd	22,061,334	774,718	91,885,034	17,071,984
23rd	22,000,000	22,000,000	86,653,225	15,823,831
24th	22,000,000	22,000,000	111,730,549	11,747,563
25th	22,000,000	22,000,000	107,699,568	8,460,441
26th	22,000,000	22,000,000	108,486,071	10,060,427
27th	43,500,000	37,500,000	163,299,642	16,564,613
28th	71,500,000	63,500,000	257,025,696	29,327,418
29th	129,033,875	72,000,000	389,277,271	42,243,642
30th	89,050,828	28,831,132	588,596,044	53,048,444
31st	72,851,132	22,000,000	713,266,508	33,270,570
32nd	22,000,000	22,000,000	702,058,929	16,731,979
33rd	38,000,000	34,000,000	523,235,302	14,477,675
34th	96,000,000	62,000,000	322,780,611	9,348,602

LOANS.

Year.	Bills discounted.		Total.	
	Amount transacted.	Balance.	Amount transacted.	Balance.
15th	52,800	—	987,800	477,300
16th	1,594,200	555,550	7,921,250	2,247,200
17th	11,124,007	1,990,848	19,322,782	3,403,643
18th	6,015,858	1,314,567	51,958,820	16,336,391
19th	10,870,104	3,559,336	77,017,516	23,315,898
20th	24,342,496	5,498,639	110,334,443	32,535,166
21st	26,429,999	5,616,101	130,236,297	28,330,097
22nd	40,091,309	11,961,995	154,037,677	29,808,697
23rd	77,547,370	21,562,322	186,200,595	59,386,153
24th	76,725,843	20,350,203	210,456,395	54,097,766
25th	63,819,821	16,437,433	193,419,389	46,897,974
26th	77,841,360	24,563,815	208,327,431	56,624,242
27th	112,467,246	20,037,184	319,266,888	74,101,797
28th	129,639,502	34,690,723	458,165,198	127,518,141
29th	212,580,969	49,344,429	730,892,115	163,598,071
30th	270,192,385	56,307,428	947,839,257	138,187,004
31st	287,746,027	55,524,621	1,073,863,667	110,795,191
32nd	419,206,172	108,141,186	1,143,265,101	146,873,165
33rd	588,249,090	97,558,216	1,149,484,392	146,035,891
34th	505,893,327	46,576,059	924,673,938	117,924,661

TABLE V.—Yokohama Specie Bank.

DEPOSITS.

(unit of *yen*).

Year.	Authorized Capital.	Paid up Capital.	Deposits. Government Funds and Deposits. Amount transacted.	Balance.
13th	6,000,000	3,000,000	4,641,256	2,105,434
14th	6,000,000	3,000,000	10,383,226	3,156,259
15th	6,000,000	3,000,000	11,346,354	2,957,122
16th	6,000,000	3,000,000	22,522,086	11,977,899
17th	6,000,000	3,000,000	35,657,475	16,818,905
18th	6,000,000	3,000,000	57,849,050	15,516,590
19th	6,000,000	3,000,000	81,474,282	16,696,445
20th	6,000,000	4,500,000	49,816,076	10,891,165
21st	6,000,000	4,500,000	58,047,466	13,675,585
22nd	6,000,000	4,500,000	21,437,636	5,291,837
23rd	6,000,000	4,500,000	8,890,845	539,342
24th	9,000,000	4,500,000	2,005,232	483,404
25th	6,000,000	4,500,000	2,057,775	407,889
26th	6,000,000	4,500,000	2,248,631	384,192
27th	6,000,000	4,500,000	2,555,607	434,359
28th	6,000,000	4,500,000	2,361,327	269,290
29th	12,000,000	6,000,000	2,202,528	245,834
30th	12,000,000	9,000,000	1,827,439	130,449
31st	12,000,000	10,500,000	3,139,878	159,660
32nd	24,000,000	12,000,000	4,951,848	2,103,501
33rd	24,000,000	18,000,000	8,910,490	408,421
34th	24,000,000	18,000,000	7,480,675	427,664

DEPOSITS.

Year.	Private Deposits.		Total.	
	Amount transacted.	Balance.	Amount transacted.	Balance.
13th	19,530,221	1,081,612	24,171,480	3,187,046
14th	35,319,098	857,896	45,702,324	4,014,155
15th	40,081,297	892,132	51,427,651	3,849,254
16th	55,954,472	1,764,163	78,476,558	13,742,062
17th	83,131,834	4,009,979	118,789,309	20,828,884
18th	89,954,554	1,046,932	147,803,604	16,563,922
19th	37,999,849	776,263	119,474,131	17,472,708
20th	54,029,432	1,866,811	103,845,508	12,757,976
21st	62,576,176	1,796,347	120,623,642	15,471,932
22nd	63,101,186	1,851,317	84,538,822	7,143,154
23rd	84,470,683	4,192,300	93,361,528	4,731,642
24th	74,698,326	5,049,068	76,703,558	5,532,472
25th	92,742,630	2,334,872	94,800,405	2,742,761
26th	112,666,758	6,038,212	114,915,389	6,422,404
27th	236,685,116	10,567,986	239,240,723	11,002,345
28th	320,052,114	12,781,678	322,413,441	13,050,968
29th	553,834,602	9,940,167	556,037,130	18,186,001
30th	671,626,922	36,003,300	673,454,361	36,133,749
31st	832,365,993	40,452,774	835,505,871	40,612,434
32nd	1,004,821,868	71,388,242	1,009,773,716	73,491,743
33rd	878,613,934	52,570,533	887,524,424	52,978,954
34th	844,045,269	46,083,183	851,534,944	46,510,847

TABLE VI.—Yokohama Specie Bank.

LOANS.

(unit of *yen*).

Year.	LOANS. Loans to the Government. Amount transacted.	Loans to the Government. Balance.	Other loans. Amount transacted.	Other loans. Balance.
13th	—	—	12,528,797	2,738,921
14th	—	—	20,011,304	3,454,045
15th	—	—	22,511,748	3,205,823
16th	867,829	—	29,663,508	4,659,214
17th	4,971,947	—	45,891,433	6,894,238
18th	4,967,537	102,603	56,378,854	5,224,119
19th	2,462,845	6,591	35,877,886	4,678,487
20th	—	—	41,609,803	4,945,084
21st	—	—	42,571,428	4,766,827
22nd	—	—	39,500,255	4,890,914
23rd	—	—	34,755,173	4,642,850
24th	—	—	40,928,849	4,550,902
25th	—	—	45,480,763	4,118,128
26th	—	—	39,541,717	5,912,970
27th	—	—	57,331,298	4,846,000
28th	—	—	64,095,000	4,365,166
29th	—	—	139,568,886	8,696,598
30th	—	—	148,408,027	4,912,124
31st	—	—	*271,882,772	*20,668,929
32nd	—	—	*358,498,736	*21,482,246
33rd	—	—	282,461,246	26,506,663
34th	—	—	294,056,195	25,496,825

LOANS.

	Bills discounted.		Total.	
	Amount transacted.	Balance.	Amount transacted.	Balance.
13th	454,241	87,910	12,983,038	2,826,831
14th	1,163,308	128,744	21,174,612	3,582,789
15th	308,157	20,000	22,819,905	3,225,823
16th	360,994	18,500	3,0892,331	4,677,714
17th	1,738,574	338,348	52,601,954	7,232,586
18th	2,955,864	637,154	64,302,255	5,963,876
19th	8,734,770	1,515,473	47,075,501	6,200,551
20th	38,311,386	2,007,521	79,921,189	6,952,605
21st	59,037,385	590,686	101,608,813	5,357,513
22nd	33,934,785	438,275	73,435,040	5,329,189
23rd	42,901,189	2,125,904	77,656,362	6,768,754
24th	44,617,260	2,433,383	85,546,109	6,984,285
25th	50,300,806	1,407,497	95,781,569	5,525,625
26th	52,530,482	2,396,605	92,072,199	8,309,575
27th	72,099,903	2,957,089	129,431,201	7,803,089
28th	82,301,235	4,286,297	146,396,235	8,681,463
29th	154,718,737	6,033,502	294,287,623	14,730,100
30th	197,840,904	9,313,763	346,248,931	14,225,887
31st	230,659,018	12,726,776	502,541,790	33,395,705
32nd	223,727,051	12,423,426	582,225,787	32,905,675
33rd	160,597,339	18,305,351	443,058,585	44,812,014
34th	115,655,641	9,021,841	409,711,836	34,518,666

TABLE VII.—Hypothec Bank of Japan.

Kangyō Ginkō.

(unit of *yen*.)

Year.	Authorized Capital.	Paid up Capital.	loans. Amount transacted.	loans. Balance.	Debentures issued.
30th	10,000,000	2,500,000	1,376,012	1,376,012	—
31st	10,000,000	2,500,000	6,776,609	6,706,734	4,972,100
32nd	10,000,000	2,500,000	9,062,816	8,774,842	7,328,360
33rd	10,000,000	2,500,000	12,236,256	11,650,631	9,640,880
34th	10,000,000	2,500,000	14,463,861	14,048,578	13,378,420

TABLE VIII.—Local Hypothec Banks.

(unit of *yen*).

Year.	No.	Authorized capital.	Paid up capital.	Deposits. Amount transacted.	Deposits. Balance.
30th	6	3,850,000	962,500	—	—
31st	41	25,620,000	8,798,020	962,686	300,459
32nd	45	27,920,000	15,980,365	2,647,296	1,222,815
33rd	46	28,370,000	22,923,485	9,555,687	2,147,058
34th	46	28,370,000	26,100,000	14,129,373	3,421,133

Year.	Loans. Amount transacted.	Loans. Balance.	Debentures issued.
30th	—	—	—
31st	4,356,537	4,221,119	—
32nd	12,717,549	12,063,021	530,000
33rd	20,822,745	19,200,809	630,000
34th	25,675,396	23,065,850	1,023,900

TABLE IX.—Hokkaidō Colonization Bank.

(unit of *yen*).

Year.	Authorized capital.	Paid up capital.	Deposits. Amount transacted.	Deposits. Balance.	Loans. Amount transacted.	Loans. Balance.
32nd (Apr.–Dec.)	3,000,000	1,050,000	276,466	53,951	710,757	703,544
33rd	3,000,000	2,098,400	1,134,916	219,230	1,698,450	1,501,606

TABLE X.—Bank of Formosa.

DEPOSITS.

(unit of *yen*).

Year.	Authorized capital.	Paid up capital.	Deposits. Government Funds and Deposits. Amount transacted.	Deposits. Government Funds and Deposits. Balance.
32nd (Sept.–Dec.)	5,000,000	1,250,000	5,618	2,810
33rd	5,000,000	1,250,000	901,205	2,061
34th	5,000,000	1,250,000	173,561	1,410

DEPOSITS.

Year.	Deposits. Amount transacted.	Deposits. Balance.	Total. Amount transacted.	Total. Balance.
32nd (Sept.–Dec.)	7,582,171	965,410	7,587,789	968,220
33rd	40,055,575	4,974,275	40,956,780	4,976,336
34th	44,342,027	4,539,771	44,479,588	4,541,181

TABLE XI.—Bank of Formosa.

LOANS.

(unit of *yen*).

LOANS.

Year.	Loans to Government. Amount transacted.	Loans to Government. Balance.	Other loans. Amount transacted.	Other loans. Balance.
32nd (Sept.–Dec.)	2,500,000	2,500,000	1,000,252	267,380
33rd	8,200,000	6,200,000	5,094,145	414,917
34th	6,700,000	5,200,000	6,231,433	531,463

Loans.

Year.	Bills discounted. Amount transacted.	Bills discounted. Balance.	Total. Amount transacted.	Total. Balance.	Debentures issued.
32nd ... (Sept.–Dec.)	1,209,694	607,253	4,709,946	3,374,633	1,834,917
33rd... ...	7,892,515	1,057,373	21,186,660	7,672,290	3,690,892
34th... ...	12,199,065	1,256,976	25,130,498	6,988,439	2,943,751

TABLE XII.—Japan Industrial Bank.

(*Kōgyō Ginkō*).

(unit of *yen*).

Year.	Authorized capital.	Paid up capital.	Deposits. Amount transacted.	Deposits. Balance.	Loans. Amount transacted.	Loans. Balance.
35th (Apr.–June.)	10,000,000	2,500,000	1,908,898	63,494	1,199,000	1,169,000

TABLE XIII.—Ordinary Banks.

DEPOSITS.

(unit of *yen*).

Year.	Number.	Amount capital.	Paid up capital.	Deposits. Government Funds and public money. Amount transacted.	Balance.
20th	221	—	18,896,061	—	6,113,522
21st	195	—	15,790,259	—	5,529,442
22nd	218	—	17,472,170	—	6,615,947
23rd	222	—	18,976,622	—	4,501,727
24th	265	—	22,142,721	—	3,242,972
25th	270	—	22,356,177	—	4,864,208
26th	604	—	31,030,248	31,362,139	2,807,568
27th	700	—	37,410,781	63,246,082	2,656,402
28th	792	—	49,919,654	76,319,016	2,866,006
29th	1,005	142,714,944	88,974,847	88,785,022	6,499,052
30th	1,223	224,971,674	149,887,838	143,937,350	11,979,378
31st	1,444	276,839,734	189,439,761	277,738,840	16,945,051
32nd	1,561	296,388,809	209,973,431	187,717,686	12,527,346
33rd	1,802	361,094,770	245,158,916	179,480,814	12,808,911

DEPOSITS.

Year.	Private Deposits. Amount transacted.	Balance.	Savings Deposits. Amount transacted.	Balance.	Total. Amount transacted.	Balance.
20th	—	15,644,295	—	—	—	—
21st	—	14,527,993	—	—	—	—
22nd	—	16,228,849	—	2,059,948	—	24,904,444
23rd	—	18,409,747	—	2,426,504	—	25,337,978
24th	—	17,820,290	—	3,630,233	—	24,693,493
25th	—	22,899,477	—	5,475,000	—	33,238,685
26th	210,633,254	35,618,642	—	—	241,995,393	38,426,210
27th	486,512,288	46,540,017	—	—	549,758,370	49,196,419
28th	766,259,957	81,386,199	—	—	842,575,973	84,252,805
29th	1,469,959,999	135,438,038	—	—	1,558,745,021	141,937,090
30th	2,241,366,166	195,761,906	—	—	2,385,303,516	207,741,284
31st	3,115,305,708	270,100,184	—	—	3,393,044,548	287,045,235
32nd.....	4,305,218,581	379,729,434	—	—	4,492,936,267	392,256,780
33rd	5,491,031,118	423,970,909	—	—	5,670,511,932	436,779,820

TABLE XIV.—Ordinary Banks.

LOANS.

(unit of *yen*).

LOANS.

Year.	Loans.		Bills discount.		Total.	
	Amount transacted.	Balance.	Amount transacted.	Balance.	Amount transacted.	Balance.
20th...	—	—	—	—	—	—
21st ...	—	28,697,174	23,705,458	—	—	—
22nd...	—	36,698,170	17,237,568	—	—	—
23rd...	—	39,537,835	36,335,987	—	—	—
24th...	—	40,922,441	42,148,241	—	—	—
25th...	—	33,882,673	54,879,103	—	—	—
26th...	146,119,086	49,083,472	67,707,985	—	213,827,071	—
27th...	253,074,134	59,178,194	96,357,015	—	349,431,149	—
28th...	380,898,955	89,165,458	198 242,173	—	579,141,124	—
29th...	761,497,455	157,200,254	458 129,582	—	1,219,627,037	—
30th...	1,297,402,583	241,899,875	730,434,151	—	2,027,836,734	—
31st ...	1,576,200,337	294,192,883	913,186,574	139,311,447	2,489,386,911	433,504,330
32nd...	1,825,389,469	311,349,289	1,584,252,168	261,771,981	3,409,641,637	573,121,270
33rd...	2,114,925,789	351,550,653	2,119,255,332	301,647,126	4,234,201 121	653,197,779

TABLE XV.—Savings Banks.

DEPOSITS.

(unit of *yen*).

Year.	Number.	Authorized capital.	Paid up capital.	Savings Deposits.	
				Amount transacted.	Balance.
26th	24	—	566,500	10,760,771	6,035,455
27th	31	—	683,000	17,661,594	6,871,327
28th	92	5,290,000	1,889,355	27,325,886	12,178,268
29th	193	12,172,500	5,039,381	51,729,525	18,214,200
30th	312	20,199,000	10,698,093	75,866,192	25,393,453
31st	418	26,699,300	14,966,242	86,109,383	30,042,074
32nd...	531	34,930,300	19,979,151	119,033,523	44,748,884
33rd	681	48,465,300	26,834,957	149 234,683	49,458,580

Year.	Ordinary Deposits.		Total.	
	Amount transacted.	Balance.	Amount transacted.	Balance.
26th	—	—	10 760,771	6,035,455
27th	—	—	17,661,594	6,871,327
28th	—	—	27,325,886	12,128,268
29th	15,423,123	2,459,608	67,152,648	20,673,808
30th	48,169,000	7,651,500	124,035,192	33,044,953
31st	93,659,013	12,665,035	179,768,396	42,707,109
32nd...	171,211,852	22,892,281	290,245,375	67,641,165
33rd	280,189,418	29 423,061	429,425,101	78,881,641

TABLE XVI.—Savings Banks.

LOANS.

(unit of *yen*).

Year.	Loans.		Bills discounted.		Total.	
	Amount transacted.	Balance.	Amount transacted.	Balance.	Amount transacted.	Balance.
26th.....	1,802,716	1,066,330	2,356,356	—	4,159,072	—
27th.....	1,776,144	675,061	6,256,976	—	8,033,120	—
28th.....	6,409,067	2,728,006	13,536,092	—	19,945,159	—
29th.....	25,162,385	8,088,206	31,870,677	—	57,033 062	—
30th.....	50,699,695	16,569,899	46,468,726	5,790,376	97,168,421	22,360,275
31st	72,761,245	23,576,480	49,887,394	7,909,428	122 648,639	31,485,908
32nd ...	106,226,648	30,201,705	97,285,819	17,669,320	203,512,467	47,871,052
33rd.....	131,302 787	38,393,253	156,120 870	25 024,609	287,423 657	63,417,862

CHAPTER VI.—Clearing Houses.

General Remarks—Various Clearing Houses.

I. GENERAL REMARKS.

Though the custom of using commercial bills in trade existed long ago, it was only in recent years that a clearing house modelled on the Western system was established in Japan. The Ōsaka Clearing House opened in December of the 12th year (1879) was the pioneer institution of this kind in Japan. Then followed the Clearing Houses of Tokyo, Kobe, Yokohama, and Kyoto. All these establishments partly partake of the Houses of London and New York in their organization and working. The Japanese clearing house business, though more or less subjected to vicissitudes, has, on the whole, made a satisfactory progress, as the perusal of the following section will show.

The Tokyo Clearing-House:—The Tokyo clearing-house commenced its business at the end of the 20th year, with a perceptible good result, but the subsequent development of banking business necessitated the organization of the clearing-house, and in 24th year the new clearing-house, as it now stands, was established. Its organization was mainly based on those of clearing-houses in Europe and America. The number of associated banks at the end of 34th was 36, besides the Bank of Japan.

The Kyoto Clearing-House:—The Kyoto clearing-house was founded in the 31st year; the number of associated banks in December of 34th was 21.

The Ōsaka Clearing-House:—The Ōsaka clearing-house founded in the 12th year is the first of all clearing-houses established in our country. In Ōsaka, the centre of trade in our country since old time, checks and bills were in use long before

the Restoration, and it now took also the lead in the matter introducing the clearing-house. The number of associated banks in December of 34th year was 33.

The KOBE CLEARING-HOUSE :—The Kobe clearing-house was founded in the 30th year ; the number of associated banks in December of 34th year was 16.

THE YOKOHAMA CLEARING-HOUSE:—The Yokohama clearing-house was founded in the 33rd year ; the number of associated banks in December of 34th year was 12.

II. VARIOUS CLEARING HOUSES.

AMOUNT OF BILLS CLEARED AT VARIOUS CLEARING HOUSES.

Year.	Tokyo.		Ōsaka.	
	Number of bills cleared.	Amount cleared.	Number of bills cleared.	Amount cleared.
12th	—	—	—	2,835,892
13th	—	—	—	37,457,435
14th	—	—	—	48,065,853
15th	—	—	—	46,487,510
16th	—	—	—	31,385,877
17th	—	—	—	22,656,066
18th	—	—	—	17,737,207
19th	—	—	—	22,074,700
20th	1,987	1,232,186	—	24,072,164
21st	25,289	12,281,949	94,797	28,898,848
22nd	36,524	19,559,401	112,821	34,187,151
23rd	42,301	20,206,095	123,472	37,247,780
24th	59,521	67,595,423	137,899	39,122,501
25th	97,190	113,576,595	161,489	49,610,071
26th	134,505	148,018,871	174,035	63,600,661
27th	172,189	185,597,497	180,892	67,543,807
28th	223,123	289,102,424	208,622	79,654,118
29th	349,423	417,425,507	324,816	138,409,333
30th	442,034	552,890,212	308,624	160,967,476
31st	792,151	790,247,459	484,539	225,980,828
32nd	1,251,921	1,095,805,417	760,976	376,853,277
33rd	1,830,607	1,405,449,664	1,033,143	523,552,745
34th	1,860,156	1,268,802,079	929,327	528,122,083

Year.	Kyoto.		Yokohama.		Kobe.	
	Number of bills cleared.	Amount cleared.	Number of bills cleared.	Amount cleared.	Number of bills cleared.	Amount cleared.
12th	—	—	—	—	—	—
13th	—	—	—	—	—	—
14th	—	—	—	—	—	—
15th	—	—	—	—	—	—
16th	—	—	—	—	—	—
17th	—	—	—	—	—	—
18th	—	—	—	—	—	—
19th	—	—	—	—	—	—
20th	—	—	—	—	—	—
21st	—	—	—	—	—	—
22nd	—	—	—	—	—	—
23rd	—	—	—	—	—	—
24th	—	—	—	—	—	—
25th	—	—	—	—	—	—
26th	—	—	—	—	—	—
27th	—	—	—	—	—	—
28th	—	—	—	—	—	—
29th	—	—	—	—	—	—
30th	—	—	—	—	30,789	27,633,168
31st	230,858	69,034,033	—	—	104,790	100,843,119
32nd	406,390	133,616,955	—	—	123,971	115,914,379
33rd	527,033	167,566,438	215,441	348,306,775	175,679	168,228,769
34th	538,199	145,905,182	237,925	390,516,606	191,848	182,437,142

PART VI.

ARMY AND THE NAVY.

CHAPTER I.—Army.

History—Distribution of the Standing Army—The Personnel on Peace Standing—Factories—Appointments of Officers—The Complement of non-commissioned Offiers—Recruiting of Privates—Education—Punishment and Goals—Medical Affairs—Veterinary Surgery—The Red Cross Society of Japan.

I. HISTORY.

At the time of the foundation of the Empire when the political institutions of the country were so simple that civil and military affairs were one and indivisible, all the adults in the realm were obliged to offer their services in the army with the emperor as the commander-in-chief. Coming to the "Middle Ages," however, we find that a distinct line of demarkation was drawn between civil and military affairs. The army had then regular generals and captains under the control of a regular office which had under it the "Left and the Right Horse Departments" where horses contributed as a tribute from the provinces were kept. In each province a military corps was established, and every third adult male was enrolled in it. In time of emergency all those adults were liable to be called out for the active service.

When the military power of the country had passed into the hands of the Genji and the Heike clans, a class of professional soldiers made its appearance. Both the leaders and their retainers trained their sons in their own profession which

therefore became a hereditary one. Thus the system of feudalism was at last evolved. The powerful barons maintained their strongholds in the various districts, encroached upon the surrounding places, till at last they brought those districts under their arbitrary sway and detached them from the direct control of the rightful owner, the Imperial court. These professional soldiers enjoyed hereditary pensions, were bound to their masters by the relationship of liege lords and retainers, and kept up the system of feudalism which was carried to a state of great perfection during the Tokugawa Regency.

This system ceased to exist with reinstatement of the Imperial régime in the Restoration, and was superseded by a regular local administrative institution by which all the evils engendered by the arbitrary rules of feudal government were swept away, the Imperial form of administrative unification was re-established and all the different public institutions were restored to bloom forth with renewed glory and power. The hereditary pensions of the professional warrior class was redeemed by public loan bonds, and the warriors were made to shift for themselves in other productive walks of life. The vacancy thus created in the military ranks was filled with the adults of the country of all classes, and the system of hereditary soldiers superseded by that of conscription. The successful consummation of this grand work of social revolution without any heavy price being paid in bloodshed or in the other national disasters usually incidental to such mighty changes reflects great credit on the solidarity of our national system and on the tremendous influence of the Imperial court.

In the very beginning of the new era administrative affairs were subdivided into seven departments, one of which took charge of military and naval matters. This office was next designated as the National Defence Office, superseded in its turn by the system of Military and Naval Commissioners taking charge of the Military and Naval Office, Fortification Office, Warship Office, Arms and Weapon Office and Horse Office. The Military College and Military Hospital were also

attached to the Board of Commissioners. In the 2nd year the post of commissioners was abolished, and the Military and Naval Department was established and was made to attend to matters relating to military and naval education, finance and discipline. An arsenal was attached to the Department in the 3rd year. In the 4th year the two military garrisons, the Tōsan and the Saikai Garrisons, were organized and also the Army medical office. The organization of the Department was subjected to thorough readjustment in the same year, and gradually a line of demarkation began to be drawn up between the land and the sea services. According to this new arrangement the department was subdivided into the Army and the Naval Sections, the former to comprise Education Office, Army Medical Office, Court-martial, Arsenal and Magazine, Staff Office, "Three Services" Headquarters, and the three Garrisons of Tokyo, Ōsaka, and Chinsei. The Naval Section comprised the offices of Shipbuilding, Hydrographical, Seamen, and Admiralty. This principle of the separation of the two main services was completed in the following year when the War and the Naval Departments were separately established, and the former was subdivided into the offices of Personnel, Education and Surgeon, Arsenal and Magazine, Imperial Household Guards, Court-Martial. The Non-Commissioned School that was created that year was attached to the Education Office. In the 6th year the number of garrisons was increased to six, that is Tokyo, Sendai, Nagoya, Ōsaka, Hiroshima and Kumamoto. In the 7th year the Military Remount Section and the Staff Board were created, while in the following year the two offices of the Arsenal and the Magazines were superseded by the Central Arsenal and the Branch Arsenal, the latter of which located in Ōsaka. In the 9th year the Ordnance Council was organized, while in the 11th year the Staff Board was superseded by the Central Staff Board and the Inspection Headquarter. The Tokyo Gendarmes Corps was first established in the 14th year, and in the following year the Staff College was created, the Colonial Troops Office formerly attached to the Hokkaidō Colonial Board was transferred to the

control of the War Office, the Board having been abolished shortly before. The Court-Martial received considerable improvement in the same year. In the 16th year the Engineering Council was organized, while in the 20th year the jurisdiction of the Inspection Headquarters was considerably enlarged and that department made to control the five schools, Shikan, Yōnen, Toyama, Artillery and Non-Commissioned service, and also the two Councils of Ordnance and Engineering.

Next year the Military Remount School and the Military Surgeon School were established. In the 23rd year the Artillery Corps that had formerly been subdivided into two branches was subdivided into three, while at the same time twelve branch corps and magazines were added. In the same year the Military Paymasters School was established. Next year the number of branches of the Engineering Corps and of the Artillery Corps was increased. In the 25th year the Military Supply Office was established, and in the following year the Military Surgeon School. Under the Governor-General of Formosa in the 28th year several military office, as also the Telegraph Construction Office and the Lighthouse Office were established. The creation of the Weihaiwei Office of Occupation was also effected in the same year. In the 29th year the Governor-General's Office of Formosa and the Tokyo Defence Headquarters were established, and at the same time the number of military divisions was increased from six to twelve. In the 30th year the Military Bureau under the Governor-General of Formosa was subdivided into the Military Staff and the Naval Staff. In the 31st year the Supreme Council of War to the Emperor was organized and also the Military Education Board was established to take the place of the Inspection Headquarter. In the 32nd year the Non-Commissioned School ceased to exist. In the 34th year the Fortification Headquarter was reorganized and the Tokyo Defence Headquarter was abolished. The military organization as it existed in the 35th year is shown in the next section.

II. THE DISTRIBUTION OF STANDING ARMY.

The distribution of the Standing Army is as follows:—

DISTRIBUTION OF THE STANDING ARMY.

	Location of Divisional Head-quarter.	Infantry. Brigades.	Infantry. Regiments.	Cavalry. Brigades.	Cavalry. Regiments.	Field artillery. Brigades.	Field artillery. Regiments.	Engineer'g Battalions.	Commissariat Battalions.	Locality of garrison of various corps.
Imperial Body guard.	Tokyo	No. 1	No. 1	—	—	—	No. 1 — No. 13 Imperial Bodyg'rd „ 14 Imperial corps. „ 15 Bodyg'rd corps.	—	—	Tokyo.
		„	„ 3	No. 1	No 13	—	—	—	—	Narashino.
			„ 4		„ 14					
1st Division.	Tokyo	„ 1	„ 1	—	—	—	—	—	—	Tokyo.
			„ 15	—	—	—	—	—	—	Takasaki.
		„ 2	„	—	—	—	—	—	—	Sakura.
			„	—	—	—	—	—	—	Tokyo.
		—		—	1	—	—	—	—	Tokyo.
			—	„ 2	„ 15	—	—	—	—	Narashino.
					„ 10	—	—	—	—	Narashino.
2nd Division.	Sendai	„ 3	—	—	—	—	No. 1 — No. 1	—	—	Konodai.
		„ 15					„ 16 — „ 2	—	—	„
							„ 17 — „	—	—	„
							„ 18 — „	—	—	Shimo-shizu
3rd Division	Nagoya	„ 5	No. 6	—	„ 3	—	„ 3	No. 3	No. 3	Nagoya.
		„ 17	„ 33	—	—	—	—	—	—	Toyohashi.
			„ 18	—	—	—	—	—	—	Shizuoka.
			„ 34	—	—	—	—	—	—	
4th Division.	Osaka	„ 7	„	—	„ 4	—	„ 4	—	„ 4	Osaka
			„ 35	—	—	—	—	—	—	Otsu.
		„ 19	„ 9	—	—	—	—	„ 4	—	Fushimi.
			„ 38	—	—	—	—			
5th Division.	Hiroshima.	„ 9	„ 11	—	„ 5	—	„ 5	„ 5	„ 5	Hiroshima.
			„ 41	—	—	—	—	—	—	Hamada.
		„ 21	„ 21	—	—	—	—	—	—	Yamaguchi.
			„ 42	—	—	—	—	—	—	
6th Division.	Kumamoto.	„ 11	„ 13	—	„ 6	—	„ 6	„ 6	„ 6	Kumamoto.
			„ 45	—	—	—	—	—	—	Kagoshima.
		„ 23	„ 23	—	—	—	—	—	—	Kumamoto.
			„ 46	—	—	—	—	—	—	Omura.
7th Division.	Asahigawa.	„ 13	„ 25	—	—	—	—	—	—	Sapporo.
			„ 26	—	—	—	—	—	—	
		„ 14	„ 27	—	—	—	—	—	—	
			„ 28	—	„	7	— „ 7	„ 7	„ 7	Asahiawga.
8th Division.	Hirosaki.	„ 4	„ 5	—	—	—	—	—	—	Aomori.
			„ 31	—	„	8	— „ 8	„ 8	„ 8	Hirosoki.
		„ 16	„ 17	—	—	—	—	—	—	Akita.
			„ 12	—	—	—	—	—	—	Yamagata.
9th Division.	Kanazawa.	„ 6	„ 9	—	„ 9	—	„ 9	„ 9	„ 9	Kanazawa.
			„ 35	—	—	—	—	—	—	Turuga.
		„ 18	„ 19	—	—	—	—	—	—	Sabae.
			„ 36	—	—	—	—	—	—	
10th Division.	Himeji.	„ 8	„ 10	—	„ 10	—	„ 10	—	„ 10	Himeji.
			„ 40	—	—	—	—	—	—	Tottori.
		„ 20	„ 20	—	—	—	—	—	—	Fukuchi-yama.
			„ 39	—	—	—	—	„ 10	—	
11th Division.	Marugame.	„ 10	„ 22	—	—	—	—	—	—	Himeji.
			„ 44	—	—	—	—	—	—	Matsuyama.
		„ 22	„ 12	—	„ 11	—	„ 11	„ 11	„ 11	Kochi.
			„ 43							Marukame.
12th Division.	Kokura.	„ 12	„ 14	—	„ 12	—	„ 12	„ 12	„ 12	Kokura.
			„ 47	—	—	—	—	—	—	Fukuoka.
		„ 24	„ 24	—	—	—	—	—	—	Kurume.
			„ 48	—	—	—	—	—	—	

Note:—Besides those mentioned in the above table there are artillery corps in all the forts, garrisons in Tsushima and Formosa, and Railway corps in Tokyo.

III. THE PERSONNEL ON PEACE STANDING.

According to the inquiries carried out at the end of the 34th year the strength of commanding staff on peace standing was as follows :—

Kind of service.	Active service.	1st reserve.	Landwehr.	Total.
Generals and Non-combatants of equivalent rank	110	27	10	147
Gendarmes...	91	54	27	172
Infantry	4427	1,654	873	6,954
Cavalry	421	95	28	544
Artillery	1,519	239	98	1,856
Engineering	474	98	42	614
Commissariat	252	73	34	359
Paymaster	712	307	168	1,187
Surgeon	932	526	128	1,586
Veterinary Surgeons	148	45	27	220
Band	7	—	—	7
Total	9,093	3,118	1,435	13,646
33rd year	8,608	2,400	1,165	12,173
32nd year	7,994	1,931	994	10,919
31st year	7,400	1,496	865	9,761
30th year	6,632	1,340	776	8,748
29th year	5,785	1,345	528	7,658

IV. FACTORIES.

Arsenals :—Subjoined to the Military Arms and Ammunition Office, the Arsenals manufacture and repair all sorts of arms required in the Army and also ammunition for the fleets. The Arsenals are situated in Tokyo and Osaka, the former undertaking to manufacture small arms, cartridges, and the implenents and tools pertaining to small arms. It maintains at Meguro, Itabashi and Iwahana the

powder factories. The Osaka Arsenal undertakes the manufacture of guns, connon-balls, and other objects of a like nature, and maintains the powder factory at Uji and the arm workshop at Moji.

In the 34th year the operatives employed at the Tokyo Arsenal numbered 2,064, 480 men and 96,325 women, in all 2,160,805 calculated according to the number of days the operatives attended work. Computed in the same number, the Osaka Arsenal employed in the same year 1,461,916 men and 37,641 women, in all 1,499,557.

Senju Woolen Factory :—Subject to the control of the War Minister this factory undertakes the weaving of woolen goods. In the 35th year it employed 144,381 men and 173,745 women, in all 318,126 computed according to the numbers of days each operative attended work.

Administration of Horse Affairs :—The administration of affairs connected with military horses may be divided into three stages from the commencement of the era. In the first period, that is from the 1st to the 5th year, the supply of chargers was obtained by purchase from the stock-farmers and distributed at once among the troops. In the second period, that is from the 6th to the 7th year, the horses purchased from the stock-farmer were first trained before being distributed. In the third period, that is the 14th year on, colts were purchased, and were distributed after they had been fed by the army veterinarians. In order to get a supply of colts with greater satisfaction the Horse Supply Office has been established, and subject to the control of the War Minister, it attends to the work of purchasing colts, bringing them up, distributing them among the troops, and also investigating the matters relating to the general supply of war horses. The Supply Office has its headquarters in Tokyo and seven branches in the provinces. At the branches, cultivated fields, pastures, and grass-land are provided, these measuring in all 60,502 *cho*.

V. APPOINTMENTS OF THE OFFICERS.

In the begining of the military system early in the present era the complement of officers and non-combatants of equivalent rank was made up of those who had held a cerresponding post in the service of the previously existing feudal governments, and also with those qualified for the posts and selected from among the candidates in general.

Officers of Various Corps:—The officers of infantry, cavalry and commissariat services are appointed from among the following who have undergone the following routine of study either in the troops or at the Shikan Gakko (Officers' School):

a. Those who have graduated from the central military preparatory school.

b. Those who have graduated from the Government or public ordinary middle schools or schools recognized by the Education Minister as institutions of equal standing or those who possess scholarship equal to that of those graduates and who have passed with success the entrance examination.

Paymasters:—The paymasters are appointed from among those Lieutenants or Sub-Lieutenants on active service at the various corps who, having been admitted through entrance examination to the Paymaster School, have gone through the regular course there, or those who come under any of the following heads and have gone through the required training at the Paymaster School.

a. Those students of the College of Laws of the Imperial Universities or of the Higher Commercial School who on application have been elected as paymasters candidates and who as such have gone through the respective courses at those instituttions.

b. The graduates of the foregoing institutions or of the graduates of foreign institutions of equal standing who have applied for the paymastership.

Surgeons:—The complement of military surgeons is filled with

those coming under the following headings who have acquired the required knowledge at the infantry corps or at military hospitals:—

a. The students of the Colleges of Medicine of the Imperial Universities or of a special school for medicine or of a local medical school regarded as of equal standing by the Minister of Education as the ordinary middle schools, and who have applied for admission to the service and who have graduated from the respective institutions.

b. The graduates of the above-mentioned institutions (or the graduates of foreign institutions possessing equal scholarship) who have applied for admission to the service.

c. The graduates of the Military Surgeons School.

d. The one-year volunteers possessing either the license of medicine or of pharmacy who have applied for admission to the service.

Military Veterinary Surgeons:—The staff of Military Veterinary Surgeons is supplemented with those coming under the following heads, and who have acquired the required knowledge at the Remounting Corps.

a. The students of the course of Veterinary Surgery of the College of Agriculture of an Imperial University or of the Practical Veterinary Course at the said College who have gone through the prescribed course at such a college.

b. The graduates of the above-mentioned institutions (or of foreign schools regarded as of equal standing) who have applied for admission to the service.

c. The one-year volunteers possessing the license of veterinarians who apply for admission to the service.

Band-Masters:—The band-masters are appointed from among the assistant band-masters who have served with distinction for at least three years on active service.

VI. THE COMPLEMENT OF NON-COMMISSIONED OFFICERS.

THE complement of non-commissioned officers is supplemented of as follows :—

GENDARMES :—The non-commissioned officers are recruited from among the lance-corporals of the corps who have been with the colors for not less than two years or from among the non-commissioned officers of the infantry, cavalry, artillery, engineering and commissarit corps who have been with the colors for not less than six years and who have passed the recruiting examination.

NON-COMMISSIONED OFFICERS OF VARIOUS CORPS :—Of the non-commissioned officers in these corps, those belonging to the longer term service are appointed from among those who are not on the active or reserve services of the army or the navy and who have passed the admission examination ; or from among the privates who have applied for admission to the service and who have received a suitable education. The non-commissioned officers of shorter-term service are appointed from among the lance-corporals who have been with the colors for at least two years from the date of enrolment and who are qualified to undertake the service.

FOREMEN OF GUNNERY WORKSHOPS :—The foremen of gunnery workshops are appointed from among those not on active service or on the either reserves of the army or the navy who have graduated from the Gunnery Artisan School or from among the privates of various corps who, having been selected on examination in the first year of their service, have also graduated from the same institution.

FOREMEN OF FARRIERY :—The foremen of farriery are appointed from among those not on the active or reserve force of the army or the navy and who have graduated from the farriery course at the Veterinary Surgery School, or from among the farriers of the cavalry, artillery or commissariat corps who on applying for admission to the service have been

judged to possess qualification equal to non-commissioned officers and who have passed the required course of study at the Veterinary Surgery School.

Foremen of tailor and shoe-workshops:—The foremen of tailor and shoe-workshops are appointed from among tailor privates and shoemaker-privates attached to the different corps.

Medical Assistants:—Medical assistants are recruited from among male nurses not on the active or reserve service of the army or the navy who, having been selected on examination, have received the necessary education.

Paymaster-clerks:—Paymaster-clerks are appointed from among the non-commissioned officers of the various corps who have served with the colors for at least three years and who have received the necessary education at the Paymasters School.

Band-Sergeants:—Band sergeants are appointed from among the bands-men who have been on active service for not less than two years and who are judged to possess qualifications equal to those of non-commissioned officers.

VII. RECRUITING OF PRIVATES.

The privates were at first recruited from the various feudal governments, the number determined according to the amount of their fief. This system prevailed till the 6th year. Early that year the conscription system was first instituted, and males who have reached the age of twenty men were all included in the army list. Thus the system of recruiting was completely changed. Since that time the system has undergone frequent modifications, till it has assumed its existing form. To briefly enumerate the fundamental points in the existing system, first.

All the Japanese male subjects from full seventeen years old to full forty are liable to military service.

The service is divided into active service, *landwehr* service, depôt service, and landsturm service.

The active service is divided into service with the colors

and with the first reserve, the former to extend over three years and to be obligatory on all who have attained the age of full twenty years. Service with the first reserve is obligatory on all who have finished the service with the colors and lasts for four years and four months.

The landwehr reserve lasts five years and is organized of those who finished the first reserve service.

The depot service is decided into the first depôt service and the second depôt service, the former to last seven years and four months and the late one year and four months. The first depôt service is organized with those who have not been enlisted for active service while the second depôt service is organized with those who have not been enlisted for the first depôt service.

The landsturm service is divided into the first and second divisions, the former to be organized with those who have completed the term of the landwehr service and the first depôt service and the second division includes all those who are not on the other services.

In the 34 year all the males liable to conscription service numbered 539,282 throughout the country. They were distributed as follows as the result of conscription service examination :—

Distribution.	Number.	Percentage.
Levied for service (active and 1st and 2nd depôt services).	187,907	34.84
Levy postponed	108,016	20.03
Levy exempted	194,003	35.98
Service exempted	34,278	6.36
Others	15,076	2.79
Total	539,282	100.00

VIII. EDUCATION.

THE STAFF COLLEGE:—This institution enables young officers of distinguished ability to study the higher branches of military education, and also those scienes a knowledge of which is necessary for all who wish to conduct investigations pertaining to military affairs.

THE ARTILLERY AND ENGINEERING SCHOOL:—Sub-Lieutenants of artillery and engineering corps are taught here all the sciences required for discharging the duties of officers in the artillery and engineering corps.

THE OFFICERS' SCHOOL:—The school is composed of cadets of various corps who receive the education required by subordinate officers. The term of study is one year, and every year about 450 cadets are admitted.

THE MILITARY TRAINING SCHOOL (Toyama Gakko):—The school is principally devoted giving to students sent from the infantry corps a training in tactics, shooting exercises, fencing and gymnastics, with the object of promoting their efficiency in the corps. The term of study is from two or seven months and the number of studeuts to be admitted determined everyyear.

THE CENTRAL MILITARY PREPARATORY SCHOOL:—This school is attended by the graduates of Local Military Preparatory Schools with which it is regularly connected, and gives to the students a general education and also the preliminary military education necessary for military cadets. It is devoted to training cadets of various crops. The term lasts two years and every year about three hundred students are admitted.

THE LOCAL MILITARY PREPARATORY SCHOOL:—These schools give a general education and military training to those boys who aspire to become officers. The schools are connected with the Central Military Preparatory School. There are six schools of this description, these being located at Tokyo, Sendai, Ōsaka, Nagoya, Hiroshima, and Kumanoto. Each admits about 50 students every year. The term extends for three years.

THE MILITARY RIDING SCHOOL:—The school collects from

the different cavalry corps students who wish to receive a training in tactics and riding. The term extends for about eleven months and the number of students to be admitted is fixed beforehand every year.

The Military Field Artillery Shooting School :—This collects students from the Field Artillery corps to give training on tactics and shooting exercises with field artillery. The term is two or three months and the number of students to be admitted is determined every year.

The Military Forts Artillery Shooting School :—This school collects students from the Fort Artillery corps to give them a training in the subjects of fortification, tactics and shooting. The term extends for two or three months and the number of students to be admitted is determined every year.

The Military Paymaster School :—This school trains those desirous to become military paymasters, the candidates to be admitted being the applicants from among Lieutenants and Sub-Lieutenants admitted on examination, and also applicants from among the graduates of the Colleges of Law of the Imperial Universities and of the Higher Commercial School. There are two courses one of two years and the other of six months. The number of students to be admitted is determined every year.

The Militarr Surgery School :—The students of this school consist of the surgeons of the Army Medical corps and also of the licensed medical practitioners and pharmatists who wish to become military surgeons on active service. The first class students are taught for four months and the second class for one year. The number to be admitted is determined every year.

The Military Veterinary Surgery School :—The students of the school consist of veterinary surgeons of the Military Veterinary Surgeons corps who receive training in this particular branch of science; also the farriery-foremen of the various corps are trained in the science of farriery. The course of study extends for from three to nine months, and the number of students to be admitted is determined every year.

THE MILITARY GUNNERY AND MECHANICS WORK SCHOOL :—The school trains those who wish to become foremen-smiths, foremen-saddlers, foremen-gunsmiths, foremen of wood-mechanics, and foremen of casting work. The course of study extends for one to two years, and the number to be admitted is fixed every year.

THE MILITARY BAND SCHOOL :—The school gives training to those desious to become band-men. The course of study is about one year and the number to be admitted is determined every year.

IX. PUNISHMENT AND GOALS.

THE COURT-MARTIAL :—On the abolition of the feudal system and the enforcement of the uniform administrative institution, the Code of Disciplinary Laws fer Army and the Navy was promulgated. In the 5th year the Court-Martial was established, and the Garrison Central and Branch Detention House Regulations were also enacted. Thus all matters relating to military justice and criminal procedure were first brought under a regular system. In the 16th year the Military Criminal Procedure was elaborated; it was amended in the 21st year, and it remains to-day in this amended form.

The Court-Martial deals all criminal offences committed by combatants and non-combatants, and it enforces the Military Criminal Code and the ordinary criminal provisions.

The Court-Martial is divided into the Higher Court and the Divisional Court. The latter is established in each Military Division and deals with criminal matters that have happened within its jurisdiction. The Higher Court is established at Tokyo and deals with Criminal matters relating to officers of the ramk of Generals: it also deals with the cases of appeals made against the judgment of a Divisional Court-Martial.

The Military Justice comprises the officers of *Kensatsu-kan* (Prosecutors), *Riji* (Preliminary Judges), *Rokuji* (Clerks), *Hanshi-cho* (Chief Judge) and *Hanshi* (Collegiate Judges). They are pre-

sidel, in the case of a Divisional Court, by the Commander of the Division, and, in the case of the Higher Court, by the Minister of War. The *Kensatsu-kan* takes charge of matters relating to prosecution of crimes; the *Riji* of the examinatien of cases, corresponding to preliminary examination of the ordinary court; and the *Rokuji* corresponds in function to clerks of the ordinary court. They are all civil officials. The *Hanshi-cho* and *Hanshi* are military officers and five of them are to sit over a case. The *Riji* takes part in judgment, though he does not enjoy the voting right. The Court-Martial is composed of the *Hanshi-cho*, the *Hanshi*, the *Riji*, and the *Rokuji*, the *Kensatsu-kan* being outside the limit. A judgment acquires validity on the approval of the Emperor or of the supervising chief, according to the official rank of the defendant or the relative gravity of the offence. Then it is declared and carried into effect.

Military gaols:—In the 9th year of Meiji the Rules relating to the Qualification of Military Gaolers were first provided, to be subsequently amended on more than one occasions, till coming to the 27th year, the Military Gaol Regulations and the Rules of Operation thereof were drawn up and these thoroughly reorganized the system.

The Military Gaols, otherwise called Garrison Gaols, are located at places possessing garrisons and Divisional Court-Martials. The Garrison Commanders are made to control the gaols. These gaols confine combatants or non-combatants who have been convicted either by the Military or ordinary laws of an offence not graver than misdemeanor and who are still connected with their respective services.

X. MEDICAL AFFAIRS.

The establishment in the first year of Meiji of the Temporary Military Hospital in Tokyo was the origin of this institution in Japan. When in the 5th year the Department of Military and Naval affairs was abolished and the War Office was created, the Bureau of Military Surgeon was subjoined to it and made to take charge of the health and hygiene of the troops. In the premises of

the Bureau a Military Hospital was established with its branch hospitals in each of the garrisons and branch-garrisons. The system has undergone changes several times, and it now exists in the form of the Garrison Hospital Regulations enacted in February of the 31st year. A military hospital is located, according to the provisions of the regulations, at each place possessing a military garrison. It takes care of all cases requiring medical treatment that appear among the troops, takes charge of the keeping and supply of medical stuff and instruments, and also undertakes the education of sergeant-privates and sergeant-non-commissioned officers. The hospital bears the designation of the name of place where it is located. All the expenses relating to the medical treatment of those receiving treatment at the hospital are borne by the Government, except for those who occupy the rank of special sergeants or above and for the one-year volunteers. For patients requiring isolation or other treatments, special provisions are made, such as lock-up hospitals, process about sequestration, disinfection, etc. For patients requiring change of air, also special treatment adapted to their cases is given.

XI. HYGIENE OF HORSES.

The establishment in the 4th year of Meiji of the Veterinary Surgery Office and the distribution of veterinary surgeons among cavalry, artillery and other corps requiring the service of horses was the the first step taken by the Restoration Government in the military veterinary surgery system of the country. In the 8th year a horse hospital was established and the matters relating to horses were separated from the Military Surgery Office. In the 19th year the sick Horse Stable, for the name of horse hospital was so changed afterward, was abolished and all matters relating to the stable were transferred to the Cavalry Office of the War Department. The Third Section of that Office was principally devoted to veterinary surgery business. Subsequently that section has been named Veterinary Surgery Section and was first attached to the General Affairs Bureau of the War Office but afterward to the Military Affairs Bureau, as is the case at present.

CHAPTER II.—Navy.

History—Affairs and Men—Factories—Complements of the Personnel—Fleet—Education—Punishment—Health—Hydrography and Chart.

I. HISTORY.

Though nothing definite is known about the maritime affairs in ancient times, this much can be stated with certainty that the art of navigation seems to have been tolerably well developed in Japan about 26 or 27 centuries ago, that is to say about six or seven centuries before the Christian era, for history records of the existence of intercourse as that remote period between this country and Korea. Coming down to the period corresponding to the 15th or 16th centuries after Christ something like a regular navigation service connected Japan with the neighbouring countries, especially Korea and China. Soon the scope of the maritime enterprises was expanded and our ships began to cross over to the South Seas, Siam, India, and even to the American continent. There is reason to believe that these ocean-going ships must have numbered about two hundred at that time. It was an irreparable loss to the country that this enterprise was sternly suppressed by the Tokugawa Shogunate about the middle part of the 17th century of the Christian era, and that it should, from religious prejudice, enforce the exclusion policy, for the Shogunate prohibited on pain of severe penalty the building of big ships, and the maritime trade that was going to flourish was thus throstled to death.

The naval warfare forms a comparatively unimportant chapter in the history of Japan. To enumerate those that are worthy of mentioning, in the first place we have the expedition of Korea by the Empress Jingo in the 2nd century A.D. About ten centuries after, the naval battle at Dannoura between the Genji and Heike

clans may be noted. The invasion of Kyūshū by Kublai Kahn's armada in the next century is perhaps the most memorable event of foreign invasion that ever occurred in Japan within the period of authentic history. The annihilation of that armada was even more complete than the equally memorable destruction by England of the Spanish Armada. Towards the close of the same century Japan took the offensive against China, and several encounters occurred between Hideyoshi's fleet with that of Korea off the coast of that Peninsula. It ought to be remembered, however, that the warships of those days were not properly warships as the term is now understood, for they were merely armed merchant-men and even fishing junks. There was no fleet properly so called in time of peace.

It was only recently that Japan obtained warships built in modern style. The warships of this type that the Tokugawa Regency purchased from abroad towards its later days numbered over ten, while more or less warships were also purchased by the feudal lords of the clans of Satsuma and Tosa. All those were the first warships that Japan ever had. However there was no central naval office at that time, and the art of navigation and naval science was in a primitive state.

As already mentioned in the preceding chapter it was in the 5th year that Army and the Navy were separated and the latter was elevated to the dignity of an independent Department of the State. Thus the central organ devoted to naval affairs was created. In the same year the Hydrographical Bureau was lowered a little in official status. At the same time the Naval Academy, Magazine, Hospital, and Court-Martial were established; Yokosuka Dockyard and workshop were transferred to the control of the Naval Department. The Naval Magazine was the forerunner of the Naval Arsenal. In the 6th year the temporary admiralty was created, and this was the origin of the present admiralty system. In the 9th year that office was replaced by the Tokai Admiralty established at Yokohama. In the 11th year the Central Staff Board was created, and was made to attend to matters relating to national defence and the efficiency of the service, both land and sea forces. At the same time a naval engineering school was established subjoined to the Naval Academy,

to be separated into an independent institution three years later. In the 17th year the Tokai Admiralty was removed to Yokosuka and received the new name of Yokosuka Admiralty. Two years later it was ordained to establish an admiralty at Kure, Sasebo, Maizuru and Muroran. The Naval Section was established in the Central Staff Board, and coming to the 21st year the Naval staff was separated and was elevated to the dignity of an independent office under the style of the Naval Staff Board. In the same year the Naval college was started. Next year the two Admiralties at Kure and Sasebo were opened. In the 33rd year the Naval Comptroller Board, the Tokyo Naval Arsenal, the Shimose Powder Factory, and the Naval Coal Reserve were established. Also an education board was created to control all the educational institutions in the Navy. In the 34th year the Maizuru Admiralty was opened.

THE PERSONNEL.

Kind of service.	Active service.	1st Reserve.	2nd Reserve.	Total.
Admirals and Non-combatants of equivalent rank	47	22	14	83
Senior officers	639	22	60	721
Junior officers	1,060	23	70	1,153
Cadets	330	-	--	330
Spacial warrant officers	631	10	54	695
Warrant officers	5,802	163	—	5,965
Seamen	22,036	4,036	1,793	27 865
Students	834	-	—	834
Total	31,379	4,276	1,991	37,646

NAVAL WORKS (for the 34th year).

Works.	No. of Engines	H.P.	No. of operatives computed by the number of attendance.	Aggregate wages of operatives. *yen.*
Yokosuka Dockyard... ...	28	564	1,513,691.87	780 048
Kure ,, ...	17	510	1,390,054.00	731,531
Sasebo ,, ...	9	816	945,317.68	483,254
Maizuru ,, ...	—	—	1,651.50	1,042
Yokosuka Arsenal	2	50	307 973.15	153,119
Kure ,, ...	41	2,797	2,035,548.46	1,040,699
Sasebo ,, ...	2	40	174,371.69	88,050
Maizuru ,, ...	—	—	401.40	319
Tokyo ,, ...	9	239	462.587.73	227 088
Shimose Powder Factory...	1	62	61,222.83	23,565
Total	109	5,078	6,892,820.31	3,528,718

Note:—The Maizuru Dockyard and Arsenal were opened on October 1st of the year.

II. COMPLEMENT OF THE PERSONNEL.

THE HIGHER SERVICE:—Concerning the method of complementing the personnel of the higher service no authentic record relating to the initial stage of the navy remains. It was very likely, however, that those officers who were employed on board the warships belonging to the Shogunate or the feudal princes got commission for the Navy of the Imperial Government. Also, the commission was given to the few who had studied the naval science in foreign countries and sometimes the officers transferred from land force. The majority, however, were the graduates of the Naval Academy, as is the case at present. According to the Naval Appointment Regulations now in force, the Naval Engineers are filled with the graduates of the Naval Engineering School while Surgeons, Paymasters, Constructors, Pharmatists, etc. are filled with the graduates of the Naval Institutions for the respective services, also the graduates of the Colleges of the Imperial Universities or of the institutions of equal standing.

COMPLEMENT OF THE STAFF OF WARRANT OFFICERS AND SEAMEN:—The posts of the Chief Warrant Officers or equivalent non-combatants were first established in December of the 3rd year. They and seamen were, in the initial stage of the Imperial fleet, filled with those who had served on board the warships belonging to the Shogunate or to feudal princes.

In the 5th year Rules relating to the boy of Seamen were promulgated, and they inaugurated the system of conscription service for the fleet. The conscription service system is supplemented by the Voluntary Service System promulgated in the 32nd year. The Conscription rules were however put in force for the first times in the 18th year. At present besides levying by the rules in question seamen, boilermen, carpenters, smith and cooks, volunteers for those various services are collected in accordance with the Voluntary Service Regulations. Chief Warrant Officers are filled with Warrant Officers of merit and the latter with seamen of merit.

Name.	Class.	Where built.	Date of
Asahi.	1st class battleship.	Great Britain.	Mar. 13th,
Mikasa.	,,	,,	Nov. 8th,
Hatsuse.	,,	,,	June 27th,
Shikishima.	,,	,,	Nov. 1st,
Fuji.	,,	,,	Mar. 31st,
Yashima.	,,	,,	Feb. 28th,
Izumo.	1st class cruiser.	,,	Sept. 19th,
Iwate.	,,	,,	Mar. 29th,
Asama.	,,	,,	Mar. 22nd,
Tokiwa.	,,	,,	July 6th,
Yakumo.	,,	Germany.	July 8th,
Azuma.	,,	France.	June 24th,
Chinyen.	2nd class battleship.	Germany.	
Kasagi.	2nd class cruiser.	United States of America.	Jan 20th,
Chitose.	,,	,,	Jan. 22nd,
Itsukushima.	,,	France.	July 18th,
Matsushima.	,,	,,	Jan. 22nd,
Hashidate.	,,	Yokosuka.	Mar. 24th,
Takasago.	,,	Great Britain.	May 18th,
Yoshino.	,,	,,	Dec. 20th,
Toyohashi.	Torpedo tender.	,,	Dec. 21st,
Fusō.	2nd class battleship.	,,	Apr. 14th,
Naniwa.	2nd class cruiser.	,,	Mar. 18th,
Takachiho.	,,	,,	May 16th,
Akitsusu.	3rd class cruiser.	Yokosuka.	July 7th,
Izumi.	,,	Great Britain.	
Akashi.	,,	Yokosuka.	Nov. 8th,
Suma.	,,	,,	Mar. 9th,
Saiyen.	3rd class coast defence.	Germany.	
Chiyoda.	3rd class cruiser.	Great Britain.	June 3rd,
Kongo.	3rd class coast defence.	,,	Apr. 17th,
Hiyei.	,,	,,	June 8th,
Heiyen.	1st class gun-boat.	China.	
Tsukuba.	3rd class coast defence.	East India.	Uncertain,
Miyako.	Dispatch-boat.	Kure.	Oct. 27th,
Takao.	3rd class coast defence.	Yokosuka.	Oct. 15th,
Yaeyama.	Dispatch-boat.	,,	Mar. 12th,
Tenriu.	3rd class coast defence.	,,	Aug. 18th,
Katsuragi.	,,	,,	Mar. 31st,
Yamato.	,,	Onohama.	May 1st,
Musashi.	,,	Yokosuka.	Mar. 30th,

launch.	Material of Hull.	Displacement.	Indicated Horse power.	Speed.	Armaments. Ordinary Guns.	Quick-firers.	Tropedo-tubes.
32nd year.	Steel.	15,443	15,207	18	4	46	4
32nd year.	,,	15,362	15,207	18	4	46	4
32nd year.	,,	15,340	14,700	18	4	46	4
31st year.	,,	15,088	14,700	18	4	46	5
29th year.	,,	12,649	13,687	18	4	34	5
29th year.	,,	12,517	13,687	18	4	34	5
32nd year.	,,	9,906	14,700	21	—	38	4
32nd year.	,,	9,906	14,700	21	—	38	4
31st year.	,,	9,855	18,248	22	—	38	5
31st year.	,,	9,855	18,248	22	—	38	5
32nd year.	,,	9,800	15,500	20	—	36	5
32nd year.	,,	9,456	16,600	20	—	36	5
15th year.	,,	7,335	6,000	15	4	14	3
31st year.	,,	4,978	17,235	23	—	30	4
31st year.	,,	4,836	15,714	23	—	30	4
22nd year.	,,	4,278	5,400	16	1	30	4
23rd year.	,,	4,278	5,400	16	1	27	4
24th year.	,,	4,278	5,400	16	1	29	4
30th year.	,,	4,227	15,967	23	—	30	5
25th year.	,,	4,225	15,967	23	—	36	5
21st year.	,,	4,120	1,870	13	—	5	—
10th year.	Iron.	3,777	3,650	13	4	16	3
18th year.	Steel.	3,709	7,604	18	—	20	4
18th year.	,,	3,709	7,604	18	—	20	4
25th year.	,,	3,172	,516	19	—	20	4
16th year.	,,	2,967	5,576	17	2	14	—
30th year.	,,	2,800	8,000	20	—	20	2
28th year.	,,	2,700	8,500	20	—	20	2
16th year.	,,	2,481	2,839	15	4	6	4
23rd year.	,,	2,439	5,678	19	—	25	3
10th year.	,,	2,284	2,535	13	8	2	2
10th year.	,,	2,284	2,535	13	8	2	2
20th year.	Steel.	2,185	1,200	11	1	7	—
	Wooden.	1,978	526	8	7	—	—
30th year.	Steel.	1,800	6,130	20	—	12	2
21st year.		1,778	2,332	15	5	2	2
22nd year.	Steel.	1,609	5,400	20	—	11	2
16th year.	Wooden.	1,547	1,267	12	7	—	—
18th year.		1,502	1,622	13	7	4	—
18th year.		1,502	1,622	13	8	—	—
19th year.		1,502	1,622	13	8	—	—

Name.	Class.	Where built.	Date of
Tsukushi.	1st class gun boat.	Great Britain.	Uncertain.
Kaimon.	3rd class coast defence.	Yokosuka.	Aug. 28th,
Chihaya.	Dispatch-boat.	,,	May 26th,
Amagi.	2nd class gun boat.	,,	Mar. 13th,
Tatsuta.	Dispatch-boat.	Great Britain.	Apr. 6th,
Iwaki.	2nd class gun boat.	Yokosuka.	July 16th,
Ōshima.	,,	Onohama.	Oct. 14th,
Maya.	,,	,,	Aug. 18th,
Atago.	,,	Yakosuka.	June 18th,
Chokai.	,,	Ishikawajima.	Aug. 20th,
Akagi.	,,	Onohama.	Aug. 7th,
Sōkō.	,,	China.	
Chintō.	,,	Great Britain.	
Chinsai.	,,	,,	
Chinnan.	,,	,,	
Chinhoku.	,,	,,	
Chinchu.	,,	,,	
Chinpen.	,,	,,	
Shirakumo.	Torpedo destroyer.	,,	Oct. 1st,
Akatsuki.	,,	,,	Nov. 13th,
Ikazuchi.	,,	,,	Nov. 15th,
Inazuma.	,,	,,	Jan. 28th,
Akebono.	,,	,,	Apr. 25th,
Sasanami.	,,	,,	July 8th,
Oboro.	,,	,,	Oct. 5th,
Murakumo.	,,	,,	Nov. 16th,
Shinonome.	,,	,,	Dec. 14th,
Yūgiri.	,,	,,	Jan. 26th,
Shiranui.	,,	,,	Mar. 15th,
Kagerō.	,,	,,	Aug. 23rd,
Usukumo.	,,	,,	Jan. 16th,

Grand total 72 vessels

launch.	Material of Hull.	Displacement.	Indicated Horse power.	Speed.	Armaments. Ordinary Guns.	Quick-firers.	Torpedo-tubes.
	Steel.	1,372	2,433	16	7	2	—
15th year.	Wooden.	1 367	1,267	12	8	—	—
33rd year.	Steel.	1 250	6,000	21	—	6	5
10th year.	Wooden.	926	726	11	6	4	—
27th year.	Steel.	864	5,069	21	—	6	5
11th year.	Wooden.	667	659	10	3	—	—
24th year.	Steel.	640	1,217	13	4	5	—
19th year.	Iron.	622	963	10	2	2	—
20th year.		922	963	10	2	—	—
20th year.	Iron.	622	963	10	2	—	—
21st year.	Steel.	622	963	10	4	6	—
2nd year.	Wooden.	610	117	9	2	1	—
14th year.	Steel.	447	420	10	3	—	—
,,	,,	447	420	10	—	2	—
,,	,,	447	420	10	—	2	—
,,	,,	447	420	10	3	—	—
,,	,,	447	420	10	3	—	—
,,	,,	447	420	10	3	—	—
34th year.	,,	373	7,000	31	—	6	2
34th year.	,,	355	6,000	31	—	6	2
31st year.	,,	311	6,200	31	—	6	2
32nd year.	,,	311	6,200	31	—	6	2
32nd year.	,,	311	6,200	31	—	6	2
32nd year.	,,	311	6,200	31	—	6	2
32nd year.	,,	311	6,200	31	—	6	2
31st year.	,,	279	5,475	30	—	6	2
31st year.	,,	279	5,475	30	—	6	2
32nd year.	,,	279	5,475	30	—	6	2
32nd year.	,,	279	5,475	30	—	6	2
32nd year.	,,	279	5,475	30	—	6	2
33rd year.	,,	279	5,475	30	—	6	2
...		252,180	459,500	—	152	1,022	160

YOKOSUKA NAVAL STATION.

Number.	Class.	Material of Hull.	Length. (*Metres*).	Displacement.	Horse power.	Speed.	Armaments quick firers.	Torpedo tubes.
No. 5	3rd class	steel	35 000	54	525	20	1	2
No. 6	,,	,,	35.000	54	525	20	1	2
No. 14	,,	,,	35.000	54	525	20	1	2
No. 15	,,	,,	34.000	53	657	20	*1	2
No. 18	,,	,,	35.000	54	525	20	1	2
No. 20	,,	,,	34.000	53	657	20	*1	2
No. 29	,,	,,	37.000	88	2,000	26	1	3
No. 30	,,	,,	37.000	88	2,000	26	1	3
No. 37	,,	,,	39.000	83	1,200	24	1	3
No. 38	,,	,,	39.000	83	1,200	24	1	3
No. 45	,,	,,	39.000	83	1,200	24	1	3
No. 46	,,	,,	39.000	83	1,200	24	1	3
Total	—	—	—	830	12,214	—	12	30

KURE NAVAL STATION.

No. 12	3rd class	Steel	35.000	54	525	20	1	2
No. 13	,,	,,	35.000	54	525	20	1	2
No. 17	,,	,,	35.000	54	525	20	1	2
No. 19	,,	,,	35.000	54	525	20	1	2
No. 26	,,	,,	33.720	66	338	14	1	3
No. 27	,,	,,	33.630	74	443	16	2	3
No. 55	,,	,,	34.000	54	660	20	1	2
No. 57	,,	,,	34.000	54	660	20	1	2
Total	—	—	—	464	4,201	—	9	18

SASEBO NAVAL STATION.

Kotaka	1st class	Steel	50.290	203	1,217	19	3	4
Hayabusa	,,	,,	45.000	152	4,200	29	3	3
Manazuru	,,	,,	45.000	152	4,200	29	3	3
Kasasagi...	,,	,,	45.000	152	4,200	29	3	3
Chidori	,,	,,	45.000	152	4,200	29	3	3
Shirataka	,,	,,	46.000	127	2,600	28	3	3
Fukuriu	,,	,,	42.750	115	1,016	20	2	4
No. 7	3rd class	,,	35.000	54	525	20	1	2
No. 8	,,	,,	35.000	54	525	20	1	2
No. 10	,,	,,	35.000	54	525	20	1	2
No. 11	,,	,,	35.000	54	525	20	1	2
No. 21	2nd class	,,	36.000	80	1,150	21	1	3

Number.	Class.	Material of Hull.	Length. (*Metres*).	Displacement.	Horse power.	Speed.	Armaments quick firers.	Torpedo tubes.
No. 24	„	„	36.000	80	1,150	21	1	3
No. 25	„	„	39.000	85	990	23	2	3
No. 31	„	„	39.000	83	1,200	24	1	3
No. 32	„	„	39.000	83	1,200	24	1	3
No. 33	„	„	39.000	83	1,200	24	1	3
No. 34	„	„	39.000	83	1,200	24	1	3
No. 35	„	„	39.000	83	1,200	24	1	3
No. 36	„	„	39.000	83	1,200	24	1	3
No. 39	„	„	46.482	110	2,000	27	1	3
No. 40	„	„	46.482	110	2,000	27	1	3
No. 41	„	„	46.482	110	2,000	27	1	3
No. 42	„	„	46.482	110	2,000	27	1	3
No. 43	„	„	46.482	110	2,000	27	1	3
No. 50	3rd class	„	34.000	53	657	20	1	2
No. 51	„	„	34.000	53	657	20	1	2
No. 52	„	„	34.000	53	657	20	1	2
No. 53	„	„	34.000	54	660	20	1	2
No. 54	„	„	34.000	54	660	20	1	2
Total	—	—	—	2,883	48,039	—	45	85
MAIZURU NAVAL STATION.								
No. 44	2nd class	Steel	39.000	83	1,200	24	1	3
No. 47	„	„	39.000	83	1,200	24	1	3
No. 48	„	„	39.000	83	1,200	24	1	3
No. 49	„	„	39.000	83	1,200	24	1	3
No. 60	„	„	39.000	83	1,200	24	1	3
No. 61	„	„	39.000	83	1,200	24	1	3
Total	—	—	—	498	1,200	—	6	18
Grand total...	—	—	—	4,675	11,654	—	72	151

III. EDUCATION.

THE NAVAL COLLEGE: —Founded in the 21st year the college gives higher education to officer and engineers.

THE NAVAL ACADEMY:—Subordinate to the Board of Naval Education, the school trains those who aspire to become officers. It was founded in the 5th year, when it was called by another name, and was located in Tokyo. At present it is situated at Etajima, Hiroshima-ken.

THE NAVAL ENGINEERING SCHOOL:—Founded in the 11th year as subordinate to the Naval Academy, it was converted into an independent institution in the 14th. The school gives training to those who wish to become naval engineers.

THE NAVAL SURGERY SCHOOL:—The school gives higher course of science on naval surgeons and also teaches surgeon-cadets to qualify them for the service. It is controlled by the Director of Surgery Bureau of the Navy.

THE PAYMASTER TRAINING SCHOOL:—The school teaches the necessary knowledge to Paymaster cadets and also to the men in the service. It is controlled by the Paymaster Bureau

THE NAVAL GUNNERY TRAINING SCHOOL, THE TOPEDO-PRACTICE TRAINING SCHOOL, AND THE ENGINEERING PRACTICE TRAINING SCHOOL:—All those institutions give training to the men on the respective services.

IV. PUNISHMENT.

THE first regular office to manage matters relating to admiralty punishment was established in the 5th year. With the elaboration of the Admiralty Code of Punishment, the Permanent Admiralty Court was established at Tokyo and at all the places possessing admiralties. The fleet holds a court of justice as circumstance requires.

V. HEALTH AND HYGIENE.

With the inauguration of the Naval Department in the 5th year a Naval Hospital was founded in Tokyo. The name was changed in August 9th year to the Naval Head Hospital. When in December of the 17th year the Yokosuka Admiralty was established, a Naval Hospital was also founded there, the Admiralty to control the Tokyo Naval Hospital. In November of the 21st year that Hospital was abolished. At present each admiralty maintains its own hospital, so that we have a hospital at Yokosuka, Kure, Sasebo, and Maizuru.

VI. HISTORY OF HYDROGRAPHY AND CHART.

It was about the 4th or 5th year that a reliable chart of the Far East seas was first drawn by Japan. We had another chart much earlier than that, for in the 12th year of Bunkwa (1815) and at the time of the Tokugawa Shogunate the celebrated hydrographer of the day, Chukei Ino, compiled one that was highly valuable. In the 2nd year of Bunkyu (1862), the authorities of the time prepared, according to the method taught by the Dutchman, a chart for part of the Sea of Ise. The sounding having been incomplete while the art of printing was imperfect, the chart did not much serve the purpose of any practical utility. The sailors of those days were therefore obliged to use the charts prepared by Dutchmen and English.

In the 4th year the Hydrographical Bureau was created and the work of hydrography was commenced in a regular manner. The task involved serious difficulty, owing to the fact that the business was quite novel to the country and could not, therefore, obtain specialists qualified for it. The late Rear-Admiral Yanagi who was ordered to take charge of the business experienced innumerable difficulties. He himself possessed the best knowledge on the subject at that time having learned mathematics and surveying at Nagasaki from the Dutchmen. He, in conjunction with the commander of the British Surveying Ship "Sylvia," started the work of sounding the coast of

the Inland Sea and of Hokkaido. (It may be remarked here that the Naval chart No. 991 published by the English Hydrographical Office was based on this combined sounding; in Japan it appeared in the shape of Naval chart No. 2). Next the chart of Kamaishi on the Pacific coast of Honshu was made, based on the result of sounding carried by Japanese experts alone. This was No. 1 chart of Japan and was adopted for use by our navigators. During the 32 years that have elapsed since that time, the work was attended to with greater efficiency and diligence, and soon the agreement was concluded with many of the Western Powers for the exchange of our charts with those compiled by them. Our charts have been frequently exhibited in international exhibitions, as those held in Holland, France, America, etc. and have been received with appreciation. The charts thus for prepared number 378. At the same time the Hydrographical Registers were compiled, those relating to Hokkaido and the "Southern islands" published in the 6th year. The other records worth mentioning are the Hydrographical Registers round the coast of Japan (18 vols.), the Japan Hydrographical Work (5 vols.), the China Hydrographical Work (9 vols.), the Korean Hydrography, the Amur Coast Hydrography, the Fiji Archipelago Hydrography, the Pacific Navigation Route, and so forth.

The hydrographical business of Japan stands conspicuous as work completed by our countymen without the help of foreign specialists.

CHAPTER III.

The Red Cross Society of Japan.

THE Red Cross Society of Japan owes its origin to the South-western civil war that occurred in the 10th year. It was called at that time the Universal Benevolence Society (Haku-ai sha) and was devoted to the work of tending wounded officers and men. This civil war that lasted from February to September of that year was the most disastrous and sanguinary internal trouble our country has experienced since the Restoration as it was the last that ever occurred. The sad spectacle of hundreds of wounded officers and men both of the Government and rebel troops dying or having to endure intense suffering owing to a lack of proper medical treatment appealed strongly to a number of men philanthropically disposed of the necessity of devising some measures for alleviating to some extent in the interest of humanity this misery of war. These organized, with the support of their friends, and on the model of similar benevolent institutions existing in the West a society to which they gave the above-mentioned name. The rules of the association were hurriedly drawn up and on May 1st of that year application was forwarded to the Commander-in-chief's headquarters at Kumamoto for permission to dispatch a medical corps to the front to tend on the wounded men both on the side of the Government and on that of the rebels. Permission was granted and thus the benevolent work with which the Geneva Society is identified was, for the first time, carried out in Japan.

This philanthropic organization that was established at first to meet the urgent requirements of the time, was converted into a permament institution after the close of the war. Officials were sent to all parts of the country to persuade the people to become members of the society, and in short every effort was taken to make the preparation in time of place as complete as possible so that it might do good service in time of emergency.

Coming to the 19th year, Japan joined the Red Cross Convention of Geneva, and the Haku-ai sha amended its articles of associatson in May of the following year and changed its name to the Red Cross Society of Japan. At the same time the society was placed under the patronage of their Majesties the Emperor and Empress, and under the auspices of the Imperial Household Department and of the Army and the Navy. In carrying out that thorough reorganization and improvement the society aspired to be admitted into the circle of the Red Cross Societies existing in the West. This aspiration was soon gratified, and the Red Cross Society of Japan was, in due course, allowed by the Head Association at Geneva, to conclude a compact of mutual friendship and help with the sister associations of Europe.

On the carrying into effect of the revised Civil Code, it was decided to convert, in accordance with the provisions of the Code, the society into a corporation. With the consent of the members and the sanction of the supervising authorities, this conversion was effected in December of the 34th year. At the same time the Government issed by Imperial Ordinance the Regulations relating to the Red Cross Society of Japan. The regulations, besides establishing in a distinct manner the relations existing between the Government and the society, placed the latter on a sound and firm basis.

The society gets almost universal support from the people at large, and the rate at which the members are increasing in number has never been paralleled. In December of the 20th year the list contained only about 2,100 name, but at the end of June of the 35th year it had risen to no less than 796,045. The number of new admissions has been especially rapid since the Japan-China war, as many as a hundred thousand new members being received every year. With this great increase in the number of members, the amount of the regular subscription to the funds of the society also showed a great advance. It reached 2,153,202 *yen* and a fraction at the end of June last year.

The work undertaken by the society makes a creditable record, and it was especially one the occasion of the war in question that the society discharged its duty with signal efficiency. During the war 1,587 men and women attended the service, and the scope of

their works comprised the Reserve Army Hospitals at Hiroshima and nine other places, the temporary military hospitals in China and Korea, the permanent war hospitals, and also the conveyance by sea of invalid officers and men. Further, the society attended to such of the prisoners at Tokyo and other three places as were under medical treatment and of course undertook the nursing and medical service when the Imperial troops were dispatched to Formosa to suppress the insurgents. Altogether 101,423 invalids including 1,484 prisoners were cared for by the officials and nurses of the society.

The part which the society played during the Boxer trouble was equally distinguished. The society dispatched on that occasion 476 officials and nurses who were made to attend to the medical and nursing service at the Military Reserve Hospital in Hiroshima and at Taku and Tientsin. The society's hospital steamers *Hakuai Maru* and the *Kosai Maru* rendered invaluable service on this occasion and kept on conveying invalids from Northern China to Hiroshima. These sister steamers, it may be added, had been built soon after the Japan-China war as a result of the experience acquired during that time, and the Boxer trouble supplied unique opportunity for testing the new system. It need hardly be added that the test was attended by the most complete success. The invalids looked after by the society at the time numbered 11,348 including 245 French officers and soldiers and 4 Austrians.

Apart from the two memorable cases of war service mentioned above, the society has also undertaken several times to nurse people who were wounded in calamities accidental and natural. Among the principal cases of this kind in which the service of the society were requisitioned, we may mention the eruption of Mount Bandai in the province of Iwashiro in the 21st year, the shipwreck of the Turkish man-of-war in the 23rd year off the coast of Kii, the disastrous earthquack in the 24th year in Mino and Owari, the tidal waves in the Sanriku districts and the earthquake at Akita in the 29th year, the fire at Hachioji (Tokyo prefecture) in the 30th year. Besides, the local branches of the society undertook on many occasions the same benevolent work every time floods and other disasters overtook the provinces near to them.

Any imperfection formerly felt in the internal arrangement of the society's work,—and there were many points not satisfactory, has been removed since the Japan-China war, and the society is no longer subject to inconvenience arising from the insufficiency of materials and *personnel.* This efficient arrangement is also seen at all the local branches. According to the returns compiled in June of the 35th year, the society's medical force comprised 279 doctors, 1,558 nurses, 640 assistant nurses, besides 634 students and 128 pupils.

The society maintains a regular system of training nurses, this system put in operation from the 23rd year. At the head office the term of training extends for three years of which one half is devoted to science of nursing and the other half to practical side. At a branch office the term is one year shorter, the two years being equally divided to scientic and practical training. From the 29th year a briefer course was created for turning out under-nurses. The term of this special course extends for ten months, equally divided into science and practice training.

The Red Cross Hospital was opened in the 19th year at Iida-machi, Tokyo, and is an organ indispensable for training officials and nurses needed for the corps of the society. With the change of the title of the society and the expansion of its scope, the hospital was newly erected, on a much enlarged system, in the premises of the Imperial Household's land at Shibuya, a suburb of Tokyo. The work of construction was completed in May of the 24th year. The hospital undertakes in time of peace the training of doctors and nurses, so that it may with promptitude discharge its duty in time of war or other emergency. In order to render the training as efficient as possible, people suffering from disease are admitted to the hospital for treatment. Of the people thus cared for, those who have means are made to pay for the medication and board, but those who are poor are given treatment free of charge. In time of war the hospital is converted into a reserve military hospital, as it was actually the case on the occasion of the Japan-China war, when the hospital was converted into No. 3 branch hospital of the Tokyo Reserve Military Hospital and took under it a number of invalids both Japanese and foreign.

PART VII.

COMMUNICATIONS.

CHAPTER I.—Post.

General Remarks—Official Organization—Transmission and Delivery—Kinds and Fees of Mail Matters—Foreign Mail—Receipts and Disbursements.

I. GENERAL REMARKS.

It was in the 4th year (1871) that the postal system modelled on the Western mail service was first adopted in Japan. It must not be supposed that that was the first post system ever originated in Japan, for though in an imperfect form the service had long existed in our country. The "post station" system that was first established in the second year of the reign of the Empress Jingo (202 A. D.), when the Empress undertook an expedition against Korea, marked, theoretically speaking, the appearance of an embryonic postal service administration. This rudimentary system was brought to greater perfection in the 2nd year of the era of Taikwa (646 A.D.) by the introduction of the various administrative institutions, of the Tung Dynasty, China. The setting up of the Regency Office at Kamakura by Yoritomo was followed by a further improvement in the system and in the conveyance of letters by carriers. The mode of managing roads and ferries in this connection was specially well arranged at that time. The carrier system, however, received a serious reverse during the Regency of the Ashikaga, and by prolonged civil disorders that marked the administration of that weak Regency. In fact the system was practically suspended. With the rise of Nobunaga the service was restored; old roads and bridges were repaired,

new ones were constructed, and means of communications was considerably improved. Hideyoshi that succeeded Nobunaga carried the service to a state of greater perfection. The service, though very much developed and expanded as compared with that which had prevailing in the period of Taikwa, was confined to the conveyance of official letters, so that the general public did not participate in the benefit.

The system was very much advanced during the Tokugawa period and it was then mode much more efficient and comprehensive in operation. Official letters were regularly despatched by the Shogunate to the provinces by carriers, and the feudal lords residing in the provinces also employed regular carriers to act as messengers between their fiefs and the residential seat of the Shogunate. What was still more notworthy was the fact that the private post service was first brought into existence. This originated in the thrice-a-month system of correspondence that had been maintained between the Shogunate's retainers on duty at the Castle of Osaka and their families in Yedo. The shrewd merchants of Osaka took a hint from correspondence and some of them opened a regular system of carriers to convey private letters between the three important cities of Yedo, Kyoto and Osaka. The business proved quite renumerative as indeed it proved highly convenient to the people. For more than two centuries this primitive system of postal service was in vogue in Japan.

The overthrow of the feudal system and the introduction of Western civilization was an occasion of an extraordinary change in public and social institutions of the country, and the change of course involved the system, the improvement of which soon demanded the attention of the Imperial Government. It was, however, perceived that the business could not be carried on with efficiency and benefit as private enterprises. The Government decided to run it as an official undertaking. In January of the 4th year the new Postal Service System was promulgated, and it was put in force by way of trial between Tokyo, Osaka and Kyoto in March of the same year. The hour of transmission was previously announced and a number of carriers were despatched every day. The benefit of correspondence was

extended to all the towns and villages lying along the trunk route connecting the three principal cities. The local authorities were made to take charge of the business of transmitting the mails from one post to another and also the sale of postal stamps.

This system highly imperfect as it was compared with the one now in operation was however a memorable improvement with what had been in operation before, and for the first time the general community or strictly speaking a limited portion of the general community was enabled to participate in the benefit of the postal service. The new departure thus inaugurated was carried to greater perfection and improvements were made in quick succession. In March of the 5th year a thrice-a-day service was opened for the city of Tokyo and for the delivery of both letters and newspapers. Soon a five-times-a-day service was established between Tokyo and Yokohama, and it was announced at the same time that people were forbidden to engage as their business the transmission and delivery of letters not bearing postage stamps. In July of the same year arrangements were made for conveying letters in all places possessing Government offices or in harbors, cities, and towns where communication either official or private was actively carried on. The places north of Iburi and Shiribeshi, in Hokkaido, were however set apart as exceptions. Changes and alterations were many and frequent in the postal routes and regulation, for it was natural that the service, being quite a novelty, should require great many modifications before it could be adapted to the circumstances.

It April of the 6th year the term "postal charges" (Yubin-chin) was substituted by "postal fee" (Yubin-jei), and the fee was made uniform irrespective of distance, except in case of city mails and suburban extra fee mails. In May of the same year it was provided that matters relating to the transmission and delivery of mail matters would be solely left in charge of the Post-Master-General. In November of that year the post cards and wrappers were issued, and in the same year the Post Exchange Contract was concluded with the Unit-

ed States of America. In June of the following year Japan joined the International Postal Union, by which the arrangement of postal communication between Japan and the foreign countries was somewhat completed. In view of this the British Post Offices that had been existing in Yokohama, Kobe and Nagasaki were withdrawn in December of the 12th year, while a year hence the French Post Office at Yokohama was also withdrawn, and the postal administrative autonomy was first secured by Japan. In December of the 15th year the Postal Rules and Regulations that had been issued separately were incorporated into one new Postal Regulations carried into effect from the beginning of the following year. Among the innovations inaugurated by the amended regulations was the abolition of the system of city postal service, local postal service and suburban extra postal fee system. In other words the rate of fee was made uniform for the whole country. At the same time the mode of operation of the regulations was improved and the distribution of post offices was arranged in a more satisfactory manner than before. In December of the 17th year the postal card with reply paid was issued. The programme was elaborated in November of the 19th year of uniting the post and telegraph offices into one office, and to call this dual establishment a post and telegraph office. This rearrangement was effected as soon as circumsantances admitted of it. The amendment of the Postal Regulations was carried out in August of the 22nd year, and it inaugurated several marked improvement, such as to reduce by one half the fee for forwarding periodically printed matters, to increase about fourfold the weight allowed for the fourth class matters, that is books, drawings, piture, sample, and patterns, with the rate of fee remaining unchanged ; and also to add a new item of seeds of agricultural produce to the fourth class matter cotegory. In June of the 25th year the Parcel Post Regulations were issued and were enforced from October of the same year. In June of the same year the military post service was established for the benefit of the troops dispatched to Kobe in connection with the insurrection that had broken out in that country. In a

similar way the field post service was organized on the occasion of the Japan-China War and the means of correspondence between the front and the home country was provided. The special facilities for transmitting seeds of agricultural produce were made more efficient in operation, by setting apart such mail matters as fifth class matters and by reducing the rate of fee to one half of what was before. In the 32nd year the sale of revenue stamps besides ordinary postal stamps was commenced at the post offices. A part of the Postal Regulations was amended at the same time, and while making the allowances of weight more liberal, the rate of fee for first and second class mail matters was somewhat advanced.

Such in the main is the history of our postal service since it was inaugurated early in the era. It serves to demonstrate with what great strides this important factor of civilization has developed in Japan. The improvement so far effected was sufficiently striking and has entirely transformed the costly and primitive system that had prevailed before the Restoration. Still the service went on improving to satisfy with greater efficiency the new demand engendered by the progress of society and of economic affairs. It was in consideration of this requirement that in March, 33rd year, after a careful examination of the system in operation in Europe and America, the Postal Regulations and the Parcel Post Regulations were further improved so that they might be adopted to the new circumstances. The new regulations were put in force from October 1st of the same year. This last amendment may be regarded as constituting a new chapter in the history of our postal service, for the improvement it effected was as complete as circumstances required. The principal features of the service as improved by the last amendment may be enumerated as follows:—

The amendment sets forth with greater distinctness the principle declaring the postal service to be a Government monopoly. Provisions of similar import had existed previously but it was considered necessary to make this amendment in order to define with greater accuracy the legitimate field of action of those engaged in the business of carrying postal matter.

The secrecy of letters was guarded with greater strictness. This had also been provided for previously in accordance with the arrangements for safeguarding the secrecy of letters referred to in the Imperial Constitution promulgated in the 22nd year. The amendment in question was directed towards safeguarding in this connection the action of those who are to deal with letters.

The amendment enacted a new provision for extending to post offices and officials various privileges calculated to ensure the prompt and safe treatment of mail matters.

The reimboursement in case of damage that had previously been confined to parcels with value declared has been extended in scope and made to include ordinary mail matters.

The collecting of trade charge system that had previously been confined in operation to the parcel post has been extended to ordinary mail matters.

The letter-cards were newly issued and the system of private cards has been instituted.

The collection of cash system has been newly instituted and a provision for collecting cash against documents of value by safe and sure means has been made.

The nature of postal fees has been made more distinct than before, so that the treatment of the National Tax Law concerning arrears in payment is now applicable to the fee.

A new provision has been made for altering the address of or withdrawing mail matters or withdrawing the application of trade charges or collection of cash.

Minor changes carried out by the amendment were those relating to fees for mail matters, of registered mails, of value declared mails, etc. In December of the 34th year the fee for value declared mail matters was altered, and envelopes and wrappers for sending such matters were issued at the same time to ensure their safe transmission.

II. OFFICIAL ORGANIZATION.

The efficiency of the service depending to no small extent on the relative perfection of the organization of offices devoted to it, the history of the change of the organization shall be briefly described in this section.

Central Office of Control:—On the occasion of the inauguration of the Western Postal system all matters in connection with this system were under the control of the Department of Civil Affairs, to be transferred, on the abolition of that Department to the Department of Finance, next to the Department of Agriculture and Commerce, and lastly to the Department of Communications which was created in December of the 18th year. In that way the departments having direct charge of postal business has been frequently changed, and at present the Bureau of Communications holds the power of dealing with matters relating to posts, postal money orders, postal savings, telegraph, and telephone.

Control of local postal service:—At first the control of local postal service was undertaken by the local administrative offices, but this system was discontinued in the 16th year when the Postal Districts Regulations were elaborated and the provincial districts were marked out into a regular system of postal sections each subordinate to the other. Each main postal section had under it a number of postal sub-sections with a postal office established in it. The main postal section was made to control the services at all the postal offices existing in its jurisdiction. When telegraph affairs were transferred to the control of the Department of Communications, the postal section system was abolished in the 19th year and in place of it the Local Communication Service System was organized, in virtue of which a Communiction Control Office was established at each important place throughout the country to supervise postal and telegraph matters in its own jurisdiction. In July of the 22nd year the Local Communication Service System was abolished, the organization of post and telegraph offices was revised and affairs previously left under the care of the Communication Control Offices were transferred partly to the central Bureau and partly to the 1st Class Local Offices, the latter to deal with principally postal

and telegraph matters. When the Postal and Telegraph Office Organization was further amended in the 26th year the offices exercising the power of Control of postal and telegraph matters were called 1st Class Postal and Telegraph Offices, while the 2nd class offices were made, according to circumstances, to undertake part of the work of control. The 1st Class Postal and Telegraph Offices at present number 18 throughout the country.

Postal Offices and agencies:—When the postal system was first put into operation, the postal offices and agencies were created and were caused to deal with postal business. In the 6th year the postal offices were classified into 1st to 4th grades. In the 8th year the Postal Offices were designated as the 5th class Post Offices, and in a place containing several such offices, one office was set apart as head office and the rest as branch offices. In the 14th year the system of regular branch postal offices was instituted. In the 19th year the post offices were subdivided into three grades, and in the same year a postal office and a telegraph office that had previously existed as independent establishments were, according to local circumstances, combined into a post and telegraph office, and made to undertake the two services. At present there are in the provinces postal and telegraph offices classified into three grades, the 2nd-class and the 3rd-class post offices, the postal and telegraph offices and the postal branch offices. The postal agencies were first established in the 8th year in places separated by a greater or less distance from either a regular post office or a branch office. With the progress of the business of communication some of them have since been entrusted with the business of postal savings and parcel post services.

As the system of post offices was confined in its operation in the 4th year to the three principal cities of Tokyo, Ōsaka and Kyoto and the five open ports of Yokohama, Kōbe, Nagasaki, Niigata and Hakodate, and to the districts along their routes the number of offices did not exceed 180 at the end of that year. In the 5th year, when the service was extended to all places possessing Government offices, and to harbors, towns, etc., except in places north of Shiribeshi and Iburi in Hokkaidō, the number of postal offices was considerably increased. The offices newly established in that year alone numbered

980. The expansion of the service went on with unabated force, so that in the 6th year the new offices numbered 341 and in the 7th year no less than 1,744. In consequence of this continued addition the offices reached as many as 5,527 by the end of the 15th year. As the creation of new offices was determined upon according to the request of the local offices only, and without any interference from the central authorities, the distribution of the offices was not well proportioned to the relative density of the population. The authorities therefore decided to interfere and to turn out those offices that were judged not worth maintaining. The adoption of this new policy was soon shown in the number of offices, which began from the 16th year to diminish more or less rapidly. The result was that the numbered had declined to 4.094 by the end of the 22nd year, that is to say 1,433 less than that at the end of the 15th year. The proper balance between the number of offices and the relative density of population having been duly established, any change that was to be made in the future was in the direction of addition instead of diminution. The new departure began to operate after the 23rd year, and new offices were created as circumstances required. By the end of the 34th year the number had grown to 5,097 (consisting of 18 1st-class offices, 73 2nd-class offices, 3,898 3rd-class offices, 37 branch offices, 3 *toriatsukai-jo*, and 1,086 agencies). The number is at the rate of 1 office per 4.86 *ri* square *ri* and per 8,873 people.

The parcel post service was, in the year of its inception, that is in the 25th year, confined only to the post offices situated in the principal cities, and therefore it was undertaken at only 287 offices. The service was gradually extended, and since the 33rd year no postal office that has been dealing with ordinary mail matters has not undertaken the parcel service as well.

In April of the 9th year Japan opened its own post office at Shanghai, China, and that was the first foreign office established abroad. In December of the same year a similar office was started at Fusan, Korea. Since that time a large number of postal offices have been set up in these countries, so that by the end of the 34th year 22 such outlying offices were counted, these being located at the following places :—

China :—Shanghai, Tientsin, Chefoo, Suchow, Hangchow, Shasi, Amoi, Hankow, Peking, Fuchow, Newchwang, Nanking.

Korea :—Fusan, Gensan, Ninsen, Mukpho, Chinnanpho, Masan, Kunsan, Songjin, Seoul, Pingyang.

III. TRANSMISSION AND DELIVERY.

Transmission :—At first the postal routes were subdivided into main and minor routes, but in the 16th year the routes were classified into main, medium, and minor lines. But it was in the 18th year that the rules for determining the relative importance of routes were first drawn up and that the matter received for the first time definite treatment.

The lines fixed at that time were also of three kinds, main, medium and minor, but this distinction was determined according to regular standard. The routes connected with principal cities or lying along the principal highways were made main lines, those connecting more than two main lines or are lying along the highways next in importance to the above were called medium lines, while those that were only of local importance were set apart as minor lines. The frequency of the service of transmission and also the quickness of transmission were regulated according to relative importance of the routes. For a main route the transmission was carried out not less than twice a day, for a medium route not less than once a day, and for a minor route once. As to the rate of quickness in transmission, the main route got the quickest service, the other two routes having to put up with a less quick service.

This system of routes was more thoroughly classified in the 33rd year, this system being now in force. The new system divides the routes into four classes, namely railways, water-ways, and ordinary highways. With Tokyo as the starting line, the lines connecting it with the Governor-General's Office of Formosa, the Hokkaidō Administration Office, the places where Military Division or admiralties are located, and lastly with places where trade or manufacture is actively carried on—these lines are set apart as the 1st class routes, the remaining three routes being determined according to

their relative importance. The number of transmission service is also arranged according to the grade of the routes. For the 1st-class routes four services a day from two extremes for ordinary mail-matters, and not more three services a day for parcel post. One service is reduced for each lower grade route, and for the 4th grade the number of service is to be determined according to the local requirement. At the end of the 34th year the postal routes thus determined extended as follows in unit of Japanese *ri* :—

	1st class.	2nd class.	3rd class.	4th class.	Total.
Ordinary mail... ...	4,245	4 990	7,087	5,930	22,252
Parcel post	4,232	5,045	6,891	5,751	21,919

Note :—In the above total 1,651 *ri* in railway service and 8,510 *ri* in water-way are comprised.

Delivery :—Regular rules relating to delivery were first fixed in the 16th year, by drawing up the Postal Delivery Limit Regulations. The delivery limit was first established at that time. This was further amended in the 18th year by arranging the urban delivery limit. According to the two systems all the places within the radius of 6 *cho* from one city proper or town or village proper were included within the delivery limit of a postal office situated in such city or town or village, the places outside that radius being excluded from the delivery limit. Harbors and regular anchorages of ships though within the postal jurisdiction of the places where they are situated were regarded as being outside the delivery limit. This distinction of the delivery limit was important in connection with the number of deliveries and with rate of fee. In the 18th year the standard of delivery service was changed, and the grade of that service was determined according to the number of items of mail matter requiring to be handled. In the 24th year another amendment was extended to the method of gradation and to the number of the service, and the number of mail matter which was adopted as a standard for determining the grade of the delivery service was also raised very much.

The delivery service of parcel post requiring somewhat different treatment to that of ordinary mail matter, it was laid down in the 26th year that except at specified offices the number of delivery should be confined to once a day, that number being susceptible of

an increase according to local conditions. In the same year it was arranged that the transmission routes of parcel matter should be made distinct for the present from that of ordinary mail matter, and that the number of transmission services and the mode thereof should be arranged for each route. In the 33rd year the number of services was regularly fixed within a certain limit, and it was announced that in places where the ordinary postal routes and parcel post routes do not require separation the two may be transmitted by the same service. However this main principle that the two services should be carried on distinct routes was left unchanged.

IV. KIND OF MAIL MATTER AND FEE.

When in the 4th year the Postal Regulations were first issued only letters constituted mail matter. In the same year the official bulletins, newspapers, books and samples were included, while in the 6th year official market reports and official documents were added to the list. The issue of postal cards in the same year was a great advance, as also the system inaugurated in the 8th year of reducing the fee for matter periodically printed. In the 15th year when the Postal Regulations were amended the provisions relating to periodical books and samples were defined with greater precision, and the scope of mail matter was also expanded in such a way that any article not conflicting with the provisions of the Regulation may be forwarded for transmission as a letter. In the 17th year the postal card with reply paid was issued, while in the 22nd year seeds of agricultural produce were added to the list of mail matter, so that at present the term mail matter embraces the following list:—

1st class	Letters.
2nd class	Postal cards.
3rd class	Periodicals issued not less than once a month.
4th class	Books, printed matters, business forms, photographs, pictures, drawings, samples and designs of goods, natural history specimens.
5th class	Seeds of agricultural produce.

Note:—Postal cards must be those issued by the Government or must conform with the prescribed forms determined by the Government, while matter coming under the 3rd class must previously obtain the acknowledgement of the Department of Communications. Mail matter coming under the 3rd and lower classes must not be sealed.

The fee was varied at first according to the distance of transmission, but in less than two years after the inception of the postal system the fee was made almost uniform irrespective of distance, and the amendment in the 16th year completed this arrangement.

A brief account will be given below of the special treatment of mail matters.

a. EXPRESS DELIVERY :—This service was at first extended to all mail matters requiring prompt delivery. In the 7th year a special delivery service was established. The ordinary delivery service was utilized for places possessing a post office and therefore provided with a regular delivery service. The special delivery service was, however, applied to places not possessing such offices, or places which being on a branch postal route could not enjoy the benefit of delivery service every day. The fee for express delivery service was payable in advance by a sender, but that for special delivery service was payable by a sendee. In the 15th year the two modes of services were combined into one under the style of "express delivery," the operation being divided into urban and suburban services. The fee for urban delivery was divided into two kinds, according to the size of a city, while that for suburban service was collected according to distance of transmission. By that year's amendment the express delivery matter was confined to registered letters alone, and the fee was made payable in advance. Subsequently parcel post and value-declared mail matter were included in the list of the express delivery mail matter.

b. "POSTE RESTANTE":—The *poste restante* mails being held at the post office of destination to be handed over to the receiver when called for, the service is specially convenient for travellers or others who do not reside in any fixed place. Initiated in the 6th year, the benefit of the service was extended to letters only, the period of keeping such letters in custody at the post office of destination being three months. In the 7th year service was extended to other kinds of mail matter besides letters, while in the 13th year it was decided that the fee of *poste restante* matters must be payable in advance in

any case. Further all post offices were made in the 17th year to deal with *post restante* matters, whereas at first the service was undertaken by special offices only, and moreover the period of keeping such mail matter was, by the amended Postal Regulations of the 33rd year, limited to thirty days. At the same time the service of giving notice to the sendee of the arrival of a *poste restante* mail for him was inaugurared, such notice to be given only when the prescribed fee has been paid on.

c. Delivery certificate:—The delivery certificate system was started for the first time in the 25th year, it being intended to certify at the post office of delivery the delivery of the mail to the addressee. The certificate is sent to the sender by the delivery office. The service is extended only to parcel post, registered letters, and value-declared ordinary mails.

d. Registration:—This service took its origin in the system inaugurated in the 4th year for sending replies or receipts from an addressee to a sender who forwarded to the other any mail matter of special importance. The addressee had to pay double fee. But this system involved great trouble to all the parties concerned, so that it was abolished in November of the same year and the registration system was adopted in place of it, this being far simpler than the original one and equally efficacious for the purpose. A uniform amount of fee is paid over and above the ordinary postal fee.

e. Value-declared mails:—In the 25th year when the parcel post service was brought into existence, the arrangement was made for making good the damage on the parcel post matter to the extent superscribed provided the value of that matter was duly registered at the office and the fixed amount of insurance fee paid. Subsequently the service was extended to ordinary mail matters containing valuable articles, although no registered mail matter can be treated as value declared matter. The amount of value to be declared was at first limited to not more than 150 *yen*, but afterwards the limit has been raised to 1,000 *yen*. Value-declared mail matter must bear a prescribed wrapper issued by the Communications Department.

f. Collection of trade charges:—The collection of trade charge system was an innovation adopted in the 29th year in connection with the parcel post service. The amount to be collected was at first limited to not more than 50 *yen*. With the expansion of the value-declared mail service in the 33rd year the collection was extended to ordinary mails, and the limit of collection was raised to 300 *yen* at the same time.

g. Collection of Cash:—This service was adopted in the 33rd year. It is a system by means of which cash is collected for receipts of trade charges, warrants for dividends on shares, coupons of public loan bonds or companies' debts or receipts for premium for insurance, which are payable to bearer. The amount of money at one collection is limited to 300 *yen*. When the collection has been effected by the post office, the office will give notice to the effect to the applicant who, on receipt of this notice, shall pay the fee for transmission of money collected and shall receive the money collected for him.

The foregoing description applies to mail matters on which fees are paid. A short remark will next be made on the system of frank post. The provisions about franks were first enacted in the 5th year. They were to the effect that the representations, petitions and the like sent to Government offices would be free of charge (the limit of weight was fixed at not more than 30 *momme*, altered afterward and finally removed altogether in the 7th year); also letters between post offices and postal officials, relating to the mistaken delivery or delay in transmission of letters and other matters relating to postal business would also be free of charge. In the same year the manuscripts for newspapers were also franked, provided they were in open envelope and weighed not more than 4 *momme*. In the 7th year letters relating to post, postal money order and postal savings were also franked, while in the 9th year, with the object of encouraging industry, the samples of seeds of agricultural produce not weighing more than 16 *momme* and experimental samples not weighing more than 32 *momme* were sent free, provided they could be regarded as of public utility. In the 15th year the matters relating to post,

postal money orders, postal savings bank were also declared free of charge, and in a similiar way the amended Postal Law promulgated in the 33rd year contained provisions for sending free of charge mail matters relaing to post, postal money orders, postal savings banks, telegraphs and telephones. Other things that were transmitted as franks were military postal matter, and on the occasion of the Japan-China war mail matters sent from the front by troops, fleet, military offices, and combatants and civilians were exempted from any fee, except those that were treated in accordance with the International Postal League.

The quantity of mail matters has shown remarkable progress with the development of the mechanism of the service and as a result of greater activity of correspondence among the people. In the 5th year the mail matters transmitted (including foreign mails, this remark applying to the figures mentioned afterwards in this paragraph) numbered 2,500,000, in the 14th year they creased to 84,000,000; in the 24th fixed year to 249,000,000; and in the 34th fiscal year to 816,000,000. The transmission per one of the population that numbered six and a fraction ten years ago has now increased to 18. The relative number of transmissions of mail matter by our post offices will be shown below:—

ORDINARY MAIL MATTER.

Year.	Letters.	Post-cards.	Newspaper and magazines.
25th	74,991,639	133,260,804	50,829,871
26th	83,658,531	158,147,967	56,968,571
27th	97,899,192	190,692,558	80,415,635
28th	113,425,548	228,503,898	78,963,325
29th	126,872,386	262,867,761	86,803,337
30th	148,254,148	287,069,246	88,266,273
31st	160,391,547	327,261,448	90,871,444
32nd	152,122,551	330,859,267	109,028,464
33rd	175,922,981	395,249,632	133,391,078
34th	190,951,188	436,673,345	139,116,263

Year.	Ordinary mail matter. Other.	Total.	Parcels.	Total.
25th	18,723,429	277,805,743	40,755	277,846,498
26th	22,120,824	320,895,893	734,716	321,630,609
27th	23,511,077	392,518,462	1,207,039	393,725,501
28th	25,491,939	446,384,710	1,687,335	448,072,045
29th	26,816,198	503,359,682	2,738,412	506,098,094
30th	27,326,076	550,915,743	4,108,488	555,024,231
31st	26,822,115	605,346,554	4,916,495	610,263,049
32nd	29,475,285	621,485,567	5,843,669	627,329,236
33rd	35,162,536	739,526,227	7,645,558	747,171,785
34th	40,086,002	806,826,798	9,272,791	816,099,589

V. FOREIGN MAIL.

When the great work of the Restoration had been accomplished, and intercourse with foreign countries became closer, the necessity of adopting more expeditious means of reciprocal correspondence began to be keenly felt. The Government, therefore, made an arrangement about foreign mail service and notified the public to that effect in March, 5th year, though at that time the means of internal communication was yet far from complete. However, in those days, the foreign mail service could be carried on by our Government only through the Postal Agencies of Great Britain, the United States of America and France which were actually conducting postal business in our open ports, Yokohama, Kobe and Nagasaki. When the Postal Convention, concluded between the United States of America and Japan, came into operation on January 1st of the 8th year the direct exchange of mail matter with foreign countries was for the first time effected. On this memorable day the United States Post Offices, established in our country, were closed. Since that time, the management of foreign mails has been so developed and improved by the earnest and persevering efforts of the authorities and it has secured so much confidence both at home and abroad that, there being no longer any necessity for British and French Postal Agencies, the former closed their office on December 31st of the 13th year,

and the latter on March 31st of the following year. But in those days, correspondence with all foreign countries besides the United States of America, could be transmitted only through the medium of that country, in accordance with the stipulations of the Postal Convention concluded between Japan and the United States of America in the 6th year. The rate of foreign postage being, consequently, high and complex, caused much inconvenience.

It was in May, 9th year, that H. I. J. M's Envoy Extraordinary and Minister Plenipotentiary at the Court of the German Emperor, sent a telegram to the Department of Foreign Affairs here, inquiring whether the Government intended to take part in the International Postal Congress which was to meet in Paris the next year. After deliberation, the Japanese Government decided to take part in the Congress, and instruct him to request the Swiss Government to propose our admission into the Post Union. The International Bureau of the Postal Union gave notice of our Government's desire to each country of the Union and the result was our country obtained the full right of entering the General Postal Union in the 10th year.

The Government of the Swiss Confederation then officially notified the countries of the Union that Japan had been admitted into the General Postal Union and sent them a copy of declaration on March 29th of the same year. Our Government promulgated General Postal Union Treaty in Imperial Ordinance No. 45 on June 19th of the 10th year. The treaty was to go into operation on June first, but its promulgation was postponed till the nineteenth, owing to the late arrival of the notification. On the same day the revised table of foreign postage was published in Imperial Ordinance No. 46, which was to take effect on the following day. The revised rates of postage were much lower and more uniform than the former rates, so the operation of the foreign mail service was greatly facilitated. In August of the same year the International Bureau of the Postal Union sent a draft amendment of the postal treaty to be placed for discussion before the general Congress of the Postal Union which was to be held in

Paris in the following year. Japan proposed to alter the rate of charges for various items of mail matter as mentioned in the draft, but in other respects our Government approved of the points set forth in the document. As it was announced that the International Postal Congress would be convened at Paris on the first day of May, of the 11th year, Japan caused its Envoy Extraordinary and Minister Plenipotentiary in Paris and another gentleman to attend the Congress, with full power to complete the arrangements. On the first day of June of the same year, the Universal Postal Union Convention was concluded and signed by the plenipotentaries of our and other countries. The new convention was ratified by H. I. M. the Emperor on December 5th of the same year and was promulgated in March of the following year in the Imperial Ordinance No. 11. to take effect on the first day of April.

It was three years after the formation of the Universal Postal Union that Japan joined it, and therefore our country, while being the first country in the Far East that was admitted into it, was not much behind even some Occidental countries in profiting by this international postal service. At present about 58 countries are on the list of the Union, and of that number, 32 joined after Japan was admitted into it.

This country was first represented by delegates at the second Postal Congress in Paris in the 11th year and has been represented at every Postal Congress since that time, at the Congress in Lisbon, Vienna and Washington in the 18th, 24th and 30th year respectively, and has contributed more or less to the work of amending the Universal Postal Convention.

The kinds of mail matter dealt with in the foreign mail service were at first only three,—letters, newspapers, and books and samples. But in December, 7th year books and samples were grouped in one class named printed matter, and just a year later it was again divided into two classes, printed matter and samples of merchandise. In June, 10th year, the post card was added and in December, 13th year, commercial papers. In December, 17th year, post cards with reply prepaid were in-

troduced. In July, 25th year, the class of printed matter was modified so as to include books, printed papers of every kind, photographs, pictures, drawings, etc. The rates of postage and limit of size and weight in foreign mails until 10th year underwent several revisions. But by our entry into the Union the limit of size and weight was increased, and the rates of postage reduced. This was the direct result of our admission into the Postal Union. The foreign postage rates had often been modified, but the final and thoroughgoing revision took place in the 30th year in connection with the change of our monetary system, and the rate then fixed upon is the rate at present in force. In September of the 33rd year exchange of registered articles with trade charges was opened between our country and Germany, Austria-Hungary, Belgium, Switzerland, Luxemburg and Roumania. On June 20th of the 35th year which was the 25th anniversary of the admission of Japan into the Universal Postal Union, a ceremony was carried out by our authorities to celebrate the occasion. In December of the same year Japan joined the Universal Postal League relating to value-declared letters and postal boxes.

VI. FOREIGN PARCEL POST.

The foreign parcel post service was first established in 12th year when an agreement was concluded with Hong Kong. At first the number of parcels was not very great and only eight post offices, namely, those in Tokyo, Ōsaka, Kyoto, Yokohama, Kobe, Nagasaki, Hakodate and Niigata were authorized to receive foreign parcels. These parcels were treated in the same manner as articles sent by letter post. But this matter was too important to be overlooked in intercourse with foreign countries, so in 23rd year a treaty for the exchange of parcels was concluded with Canada, in 27th year with Germany, in 28th year with Great Britain, and in 31st year with France. In 34th year, parcel post was begun with Siam through the intermediary of the Hongkong Postal Administra-

tion. The number of offices authorized to transact this business have been increased, and now every Post Office has this power. However, as the parcel post agreement in question did not undertake special postal treatment as that relating to value-declared business, collection of trade charges, express delivery, the withdrawal of mail matters or alteration of address, and was therefore not quite satisfactory in the efficiency of the service, Japan applied to the Government of Switzerland on the 25th anniversary of its admission to the Universal Postal Service for permission to join the International Parcel Post Convention concluded at Washington, U. S. A. The permission being obtained in time that convention was carried into effect from December of the same year.

As a result of Japan's having joined the Convention the Parcel Post Agreements previously concluded with Germany and France have been rescinded as a matter of course.

In the 34th fiscal year the number of ordinary mail matter dispatched abroad or arriving in Japan were as follows:—

	No. of dispatches.	No. of arrivals.
Asia.		
China	2,345,877	1,668,203
Korea...	1,466,304	953,589
British Colonies	154,061	159,416
Russia	76,871	35,026
British India	38,785	62,297
Netherland Colonies... ...	9,523	15,373
French Colonies	6,539	12,275
Siam	7,557	4,788
German Protectorates ...	1,723	8,816
Portuguese Colonies... ...	5,306	3,697
Others	6,904	1,119
Europe.		
Great Britain	314,040	603,760
Germany	236,831	349,205
France	126,087	205,131
Austria	76,789	29,155
Russia	42,777	47,108

	No. of dispatches.	No. of arrivals.
Italy	28,097	27,778
Belgium	12 930	18,880
Hungary	22.820	7,824
Switzerland	16,631	12,835
Netherland	9,647	11,687
Denmark	5,998	7.482
Spain	4,116	4,331
Norway	5,175	3.494
Sweden	3,015	3,679
Portugal	1,151	3,342
Others	5,956	7,824
AMERICA.		
United States	859,184	1,165,121
Canada	91,176	121,120
Mexico	4,102	3,496
Peru	3,070	3,716
Others	9,804	6,346
AFRICA.		
Egypt...	4,164	16,851
Others	6,287	4,768
AUSTRALASIA.		
Hawaii	419,836	1,478,645
British Colonies	66,491	46,063
Philippines and Guam ...	21,628	34,879
French Colonies	2,606	4,124
Others	921	519

In the 34th year therefore the foreign mails numbered over 6,520,000 in dispatches and over 7,140,000 in arrivals. As foreign parcel post mails were exchanged up to the same year only with Great Britain, Germany, France and Canada, the dispatches in that year numbered only 6,940 and the arrivals 9,385. Of the two numbers, those exchanged with Great Britain constituted the bulk.

During the same year the Japanese post offices in China and Korea dealt with altogether 3,118,000 approximately, ordinary mails and parcels put together.

VII. RECEIPTS AND DISBURSEMENTS.

THE receipts of ordinary postal matter made striking progress with the advance of the service. In the 6th year the receipts amounted to only 225,700 *yen* in round numbers, and they advanced to over 1,400,000 *yen* in the 12th year, and lastly to over 10,677,900 *yen* approximately in the 34th year. The disbursements have naturally increased in proportion, but not to so great an extent as the other part of the account. In the 6th year the disbursements stood at over 231,000 *yen*, advanced to over 1,293,900 *yen* in the 8th year, and finally to 7,286,000 *yen* approximately in the 34th year. The sums included both the ordinary postal and money order matters up to the 18th year, and though it is not at present possible to separate the two items of disbursements, this is certain that the portion spent on account of the money order service must have been relatively insignificant, most likely not more than 1/30 of the money spent on the other account as judged from the experience in the 19th year. Computed on that estimate the disbursements of ordinary mail matter always exceeded the receipts prior to the 18th year. The account of the 19th year was memorable as reverting this unfavorable balance and having inaugurated a period of profitable balances, for since that year the receipts have always surpassed the disbursements as may be seen from the following figures giving receipts and disbursement during the last eight years:—

RECEIPTS AND DISBURSEMENTS RELATING TO ORDINARY MAIL MATTER.

Year.	Receipts.	Disbursements.	Disbursements per 100 *yen* receipts.
	yen.	*yen.*	*yen.*
27th	4,730,092	2,875,627	60.8
28th	5,224,207	3,183,359	60.9
29th	5,973,611	3,729,777	62.4
30th	6,579,667	4,296,789	65.3
31st	7,294,851	5,073,240	69.5
32nd	9,648,437	6,022,788	62.4
33rd	10,508,995	6,616,923	63.0
34th	10,677,937	7,286,030	68.2

The ordinary receipts from the parcel post were 195,400 *yen* approximately in the 27th year. Since then the receipts have increased from 15 to more than 60 per cent every year. The disbursements for the year in question were about 298,000 *yen*. The yearly increase since that time has been at the rate of from 10 to over 40 per cent, though in the 29th year when the number of offices dealing with the parcel post was increased very much, the rate rose as high as 90 per cent. In general disbusements have surpassed receipts, the rate of the former being 153 against 100 of the other in the 29th year, and 117 against 100 in the 34th year.

The following table will demonstrate the relative amount of receipts and disbursements :—

PARCEL RECEIPTS AND DISBURSEMENTS.

Year.	Receipts.	Disbursements.	Disbursements per 100 *yen* receipts.
	yen.	*yen.*	*yen.*
27th	195,493	298,672	152.8
28th	281,363	353,801	125.7
29th	468,524	699,685	149.3
30th	723,335	988,501	136.7
31st	883,887	1,013,946	114.7
32nd	1,065,975	1,404,901	131.8
33rd	1,338,873	1,642,332	122.7
34th	1,540,561	1,800,669	116.9

CHAPTER II.—Postal Money Orders.

Domestic Service—Foreign Service—Receipts and Disbursements.

I. DOMESTIC MONEY ORDERS.

It was the original intention of the Government to commence the postal money order business simultaneously with the inauguration of the postal service in the 4th year, but as the Government of the day was too busy with more urgent matters, this plan could not be carried out at that time. In the 6th year, however, the time for pulling the plan into execution had come and at last the Postal Money Order Regulations were promulgated in September of the following year, and the service was opened in January of the 8th year.

Banking facilities had not yet advanced much at that time and as the means of transmitting money was extremely imperfect, the establishment of this convenient mode of remittance was eagerly welcomed by the public. The result was that although the ordinary money order service alone was undertaken the amount of money dealt with reached as much as 2,120,000 *yen* approximately in the opening year of the service. The necessarily imperfect organization of local post offices and the difficulty that existed with regard to supplying outlying offices with funds obliged the authorities to restrict the amount of the remittance made by a single person, except when the remittances were drawn on Tokyo, Kyoto, Ōsaka, Yokohama or Kobe. Later this restriction was extended to all places possessing provincial administration offices. This extension was followed by a suddenly increased amount of remittances, so that the Government was obliged to modify the arrangement and to limit more or less the amount of the remittance. The fact was that businessmen began to utilize this service for the purpose of remitting large amount of money, thereby abusing

the fundamental nature of the service which essentially consists in undertaking the remittances of small sum of money for the general public and not drafts of a commercial description.

The civil trouble that broke out in Kyūshū in the 10th year very much affected the prosperity of the business, as did also the depression that overtook the country about the 16th and the 17th year.

In the 18th year the principle embodied in the postal money order system was extended to the telegraph service so as to satisfy the requirement of those desirous to transmit money in the shortest possible time. At the same time the petty money order service was inaugurated and the fee for the use of ordinary money order was somewhat reduced.

Several alterations and improvements have since been effected. To mention some of them, in April of the 23rd year the payment of a fee in cash was superseded by payment with postal stamps, and in July of the same year money order business was opened at several places in a big city, and these special money order offices were made to supplement the service as dealt with by the regular post offices. Then in March of the 24th year the 3rd class post offices were made to deal, according to local condition with the money order business even on Sundays and other holidays. During the Japan-China war the field postal money business was established for the benefit of those at the front, while in April of the 32nd year the maximum limit of a single money order that had been fixed at not more than 30 *yen* was increased to 50 *yen*. The system of paying money orders at residences was adopted in January of the 33rd year and was first put into effect in the principal cities, to be afterward extended gradually throughout the country. In October of the 33rd year the Postal Money Order Law was enforced and several amendments were effected, as, for instance, the abolition of the system of limiting the number of orders to be issued in one day for the same person, and the increase of the maximum limit of a petty money order from 3 to 5 *yen*. Further the suspension of money order business on Sundays and other holidays was abolished for all

the postal offices and agencies, while in April of the 34th year a provision was made for the transfer of a money order by means of crossing it. In consequence of all such improvements the service has been carried to the state of greater perfection and efficiency than it was before.

II. FOREIGN MONEY ORDERS.

THE foreign postal money order service was first established in December of the 12th year by an agreement with Hongkong for the exchange of postal money orders. The Yokohama Post Office opened this service for the first time in Japan in January 13th year and other offices were soon after given the same privilege. Since March of the same year the exchange of money orders with every colony in Australasia and the Straits Settlements has been carried on. Arrangement for the exchange of postal money orders was concluded with Great Britain in the 14th year, and through the intermediary of the postal Administration of Great Britain money orders have been exchanged with Germany since January 16th year, and with British India through Hongkong. In the following year, another agreement was concluded with France. In February, 18th year, arrangements were concluded for the exchange of postal money orders with all countries of Europe and America and all the British colonies through the intermediary of the Postal Administration of Great Britain. An agreement was also concluded with the United States of America that year. In the 18th year, also, our country joined the International Postal Money Order Agreement which had been formed in accordance with the stipulations of Article XIII of the Universal Postal Convention concluded at the Universal Postal Congress assembled at Paris in 1878. The Article read: "The exchange of letters of declared value and that of postal money orders form the subject of special arrangements between the various countries or groups of countries of the Union." The arrangement for International Postal Money Orders was concurred in by almost all the nations of Europe, and by several countries of America and other Continents. But

out of these countries and colonies, those which transacted direct exchange of money orders with this country were Germany, Austria-Hungary, Bulgaria, Switzerland, Luxemburg, Roumania and Belgium, and with other countries the exchange was effected through the intermediary of the Postal Administrations of Great Britain and Hongkong. Then, special agreements were concluded with Italy in the 19th year, and with Canada, in the 22nd year. As to the international postal money orders "the Arrangement concerning the Service of Postal Money Order" concluded at the Universal Postal Congress which met in Washington in the 30th year is in operation at present.

The following figures will demonstrate the development of this service since its inception :—

		Domestic order.	
	No. of offices.	No. of application.	Amount of money. *yen.*
8th year	222	115,703	2,123,146
14th year	678	489,568	7,655,202
24th year	2,123	2,605,116	20,715,040
34th year (estimates)...	5,123	7,661,919	88,062,519

	Foreign order.			
	Orders issued.		Orders received.	
	No. of application.	Amount of money.	No. of application.	Amount of money.
8th year	—	—	—	—
14th year	129	1,894	41	1,070
24th year	2,432	64,729	2,980	109,270
34th year (estimates)...	6,994	189.256	40,917	2,954,635

III. RECEIPTS AND DISBURSEMENTS.

ORDINARY receipts stood at 260,000 *yen* approximately in the 27th fiscal year, to be advanced to about 687,000 *yen* in the 34th year. On the other hand disbursements amounted to about 295,000 *yen* in the 27th year and about 826,000 *yen* in the 34th. In the 27th year the disbursements were at the rate of about 113 *yen* per

100 *yen* of receipt, and this ratio rose to 119 *yen* per 100 *yen* in the 34th year. This rise of the ratio of disbursements was attributable to the expansion of the business and the rise of the market price of commodities. At the end of the 27th year the number of offices dealing with money order service was 2,495, and the corresponding figures at the end of the 34th year were 5,121. Details may be gathered from the appended table.

RECEIPTS AND DISBURSEMENTS AT POST AND MONEY ORDER AGENCIES.

Year.	No. of agencies.	Receipts.	Disbursements.
		yen.	*yen.*
27th	2,495	260,235	295,572
28th	2,500	314,115	324,646
29th	3,095	327,134	378,175
30th	3,185	384,702	430,727
31st	3,349	409,929	541,316
32nd	4,458	519,084	754,060
33rd	4,819	643,206	778,633
34th	5,121	687,561	826,161

Note:—The number of agencies was that existing at the end of the respective years.

CHAPTER III.—Postal Savings Bank.

It is hardly necessary to explain that the main reason why the post offices undertake the savings business, which from its nature essentially belongs to the province of ordinary banks, is to supplement the operation of the system of credit and to encourage thrift and diligence, for the post offices being found even in places lacking ordinary banking facilities are well adapted to deal with this special banking business. This postal institution that has been in operation in the Occident from a long time back was, however, until lately non-existent in Japan, so that the people thus lacked a convenient mode of laying by their little savings. It was to supply this important facility that the Meiji Government issued in April of the 8th year the Savings Bank Regulations and put them in force by way of trial in Tokyo. In December of the same year the service was extended throughout the country, and every possible expedient was brought into requisition for encouraging the people to avail themselves of this useful provision. However some people did not scruple, especially in time of tradal inactivity, to make use of the savings service as a means of investing the funds for which they could not find other more satisfactory mode of investment. On such occasions the amount of savings deposits used to swell to such big figures that it was even beyond the power of the Government to turn such an amount of money to good account. Consequently the authorities were not unfrequently obliged to lower the rate of interest on the deposits so as to prevent this postal service being abused by the people. When in the 26th year the ordinary Saving Bank Regulations were made public, and saving banks were created in many parts of the country, the business of the postal savings was somewhat affected. In other words, the habit of thrift that had been fostered by the post bank system became useful for furthering the business of those ordinary saving banks. The post bank then introduced various changes in its business arrangements, simplified the mode of procedure and moreover somewhat raised the rate of interest. Coming to the 32nd

year the post bank began to recover its former prosperity, and this state of things has continued to attend it side by side with the increasing progress of the ordinary saving bank business.

In March of the 33rd year the postal stamp saving service was established for the benefit of school-children, while in April of the 34th year the arrangement was made for accepting deposits made in the shape of national, local or municipal loan bonds or their coupons, the kind of documents to be acceptable being determined at the same time. In October of the same year the special Postal Saving Deposits Regulations were enacted for the benefit of Japanese subjects residing in foreign countries not possessing Japanese post offices.

The postal stamp saving deposits paper was at first given free of charge to applicants, but as this free gift system was very frequently abused by the people, it has been decided to charge one *sen* for each paper. It bore, however, one *sen* stamp which was to go to the credit of the depositor. Later on the kind of stamps to be paper was specified so as to simplify the work of computing. Further in the 35th year the routine of the post deposit business was considerably simplified both for the benefit of the post offices and of the general public.

The limit of saving deposits at first ranged between the two extremes of 10 *sen* and *yen* 100 per annum, the yearly total, including interest, not to exceed 500 *yen* for a single person. In December of the 10th year the lowest extreme was altered to 3 *sen*, and at the same time institutions devoted to philanthropic work were allowed to make deposit of any amount. Three years later the monthly deposits of a single person were limited to not less than 10 *sen* and not more than 30 *yen*, but the limit about the aggregate total was abandoned. In December of the 15th year a single deposit by any person was fixed at less than 10 *sen* and a deposit in one day was fixed to not more than 50 *yen*. Permission had to be obtained from the Central Postal authorities when the maximum limit was exceeded either by a single person or by a philanthropic institution. In August of the 22nd year it was amounted that a single deposit exceeding 40 *yen* would not be accepted for the present, and when the Postal Savings Bank Regulations were amended in the 23rd year, it was provided that a single deposit by any one person would

not be less than 10 *sen*, the fractions of a *sen* to be counted for the unit of *rin* only, and that the deposit in one day by a single person must not exceed 50 *yen*, the aggregate deposits, including interest, not to exceed 500 *yen*. At the same time provision was made by which a depositor could purchase Government loan bonds in the custody of the Post Office, which provision has therefore enabled a depositor to keep a deposit exceeding the regulation limit, though part of the depost may consisted in loan bonds. The rate of interest of postal savings was at first fixed at 3 per cent. per annum, raised to 4 per cent. in Feburary of the 9th year, and then to 5 per cent. in December of the same year. In the 10th year it was further raised to 6 per cent. and in April of the 14th year to 7.2 per cent. the high water mark in the history of rate of postal saving institution. In May of the 17th year the rate was reduced, to 6 per cent. for a deposit not exceeding 1,000 *yen* and 4.8 per cent. for one exceeding that sum. In June of the 19th year the rates were changed to 4.2 and 3 per cent. respectively. In April of the 32nd year the new rate of 4.8 per cent. was put in force. In adding the interest to the principal it was arranged at first that this should be done every six month, without prescribing any fixed period. Afterward the period of counting in was made uniform, that is to the months of June and December, and lastly, by the revision effected in the 23rd year the counting in was made only one time in the year, and on March 31st.

The amount of saving deposits has made on the whole satisfactory progress. For instance at the end of the 18th year it reached over 9,050,000 *yen*, which was more than 210 times that of the corresponding sum at the end of the year after the inception of the savings bank service. For several years subsequently the total amount underwent more or less fluctuation, though the movement was steadily in the direction of increase up to the 22nd year. The occurrence of disastrous floods that year and the following year in many parts of the country occasioned the withdrawing of no small sum. The outbreak of the Japan-China war in the 27th year, again brought down the level of total sum that had gone on increasing in the meanwhile. On the termination of the war the war reward below 50 *yen* in amount having been given in the shape of depo-

sit certificate, the saving deposit record at once rose to a high level. This was however temporary, for the economic disaster that followed the war ended in reducing the total. As result of the expansion of the service and of the encouragement extended to saving, the deposit business somewhat began to recover its former prosperity from the 32nd year, and the record existing on March 31st of the 35th year reached 27,200,000 *yen*. However even this sum fell below that existing at the end of the 28th and 29th year. One thing that is satisfactory is the fact that the number of depositors has steadily advanced, as this demonstrates that the lower classes have began to a greater extent than before to acquire the habit of thrift and diligence. The introduction of the postal stamp deposits service in the 33rd year also seems to have been an important means in regard to this increase of the number of depositors. The movement of the saving bank business during the last ten years is demonstrated below by a table.

POSTAL SAVINGS BANKS.

At the end of March 31st.	Deposits.	Number of depositors.	Average per one dopositor.
	yen.		*yen.*
26th	22,808,952	947,577	24.1
27th	26,134,566	1,059,740	24.7
28th	25,865,201	1,107,829	23.3
29th	28,932,396	1,222,128	23.7
30th	28,215,914	1,272,317	22.2
31st	25,717.034	1,252,559	20.5
32nd	21,968,529	1,239,669	17.7
33rd	23,411,135	1,396,147	16.8
34th	23,965,437	1,979,640	12.1
35th	27,196,802	2,363,335	11.5

In the matter of postal saving bank business these is no particular account to be called receipts. On the other hand, disbursements show a gradual increase in consequence of the rise of the price of commodities. In the 27th year they amounted to about 193,000 *yen*, and the correspondent sum in the 34th year was 515,000 *yen* approximately.

CHAPTER IV.—Telegraph.

Domestic Telegraph—Organization of the Service—Foreign Telegraph—Telegraphic Construction.

I. DOMESTIC TELEGRAPH.

It was in the 2nd year of Meiji (1869) that Japan possessed for the first time a service of telegraph. The first telegraph instrument introduced into Japan was in the 6th year of Kaei (1853). Two sets of the instrument were presented by Commodore Perry to the Tokugawa Shogunate, but they were never applied to practical purpose. In fact the Shogunate was at that time in the throes of death and had no time to devote to studying telegraphy. Nor did the majority of the people possess any knowledge about this great civilizing factor: they rather detested the apparatus as outlandish, and the sets were left to mould and decay in a storehouse.

It was destined for the Restoration Government to inaugurate this important service of communication. That Government send for an expert to England and in the 2nd year Tokyo and Yokohama separated by 8 *ri*, were first connected by telegraph. This pioneer line suffered much from the persecution and maltreatment of the ignorant masses, who betrayed their simplicity by regarding telegraphy as a sort of witchcraft, and taxed the patience of the Government by frequently injuring the line. The task of guarding it alone was no easy matter. Fortunately, while the Government was firmly resolved to maintain the service and did not spare trouble and expense to improve it, the people too were soon convinced of the utility and importance of the service, so that the telegraph lines were no longer in danger of demolition. In the 6th year the Telegraph Code and the Telegraph Service Rules were promulgated, and the service was for the first time

placed on a regular basis. However it was not till the outbreak of the civil war in Kyūshū that the telegraph service could demonstrate with convincing efficacy its usefulness and importance. After that time and especially owing to the Emperor's tour round Japan in the following year of that trouble, the progress of the telegraph business was very rapid, and many were the telegraph offices that were newly opened at that time. At the same time the country joined the Universal Telegraph Union, and thus both internally and externally the telegraph service was placed on a fair road of satisfactory development.

The state of market after the civil war and the sudden activity of business occasioned, impressed the people with the necessity of telegraphic communications. The same people who only a few years before regarded telegraph with awe and superstition now began to vie each other in applying to the authorities for the construction of lines in their own districts, and even offered to contribute the money required for the work. The authorities decided to avail themselves of this new tendency on the part of the people, accepted the contribution in cases where the acceptance was regarded useful, and thus by the combined efforts of Government and people the telegraph service was expanded. This was the state of affairs prevailing about the 14th year, and it may be regarded as the first period of expansion.

The fall of paper considerably below par in consequence of its excessive issue on the occasion of the civil trouble in Kyūshū and the marked rise of the price of commodities, and the reaction that began to make appearance about the 16th year by the issue of convertible bank notes naturally resulted in largely bringing down the market prices, with a depression of trade. This state of affairs could not but affect the Government work and its telegraphic business therefore did suffer much. On account of this fact, and also owing to the lines having already been constructed by that time through all the important districts, the authorities decided to suspend the policy of progress and advance and to adopt instead one of conservation.

This period of temporary halt in the work of expansion was utilized for perfecting the internal arrangements of the service. It was on that occasion that by the amendment of the Telegraphic Service Regulations the fee was made uniform throughout the country irrespective of distance, that the system of running the service as a contract work at telegraph offices situated in minor towns was began, and that the post and telegraph offices were combined.

At the same time the external relation was carried to the state of greater perfection. Japan dispatched a delegate to the meeting of the Universal Telegraph Convention to represent its views about the international service, and in the 17th year our country joined the International League for the protection of submarine cables, the rules relating to it being enforced in Japan two years later. About the 23rd year therefore our telegraphic system both in internal and external relations was completed, so far as the circumstances of the time required.

Meanwhile the state of the economic market began to recover its normal activity, while the Constitutional régime was inaugurated. The policy of expansion was once more resumed, and several new lines were constructed and a number of new offices were started.

The Japan-China war supplied an unusual occasion for displaying the efficacy of the service. The lines for the use of the Army were specially constructed through interior of Korea, while watch-towers were constructed at the important places along the coast of Japan, to be connected with the nearest telegraph offices. The new lines connecting both by land and sea the various important places also extended to a long length. The termination of the war and the annexation of Formosa to our dominion was signalized by the laying of a cable between it and Japan proper. Then the cable connecting the island and Fuchow was purchased from the Chinese Government. The lines in the interior of Japan proper were also added to a large extent, as the experience during the war had demonstrated that the service was not quite satisfactory and efficient in time of unusual stress. Needless to add that a sudden rise of all business activity subsequent to the war has also been a cause of the expantion of the service.

In the 32nd year from considerations of an economic and finanical

nature the rate of fee of domestic service was slightly raised, and in the following year the Telegraph Law and rules pertaining to it were amended.

In short the technical knowledge possessed by Japan in the work of constructing lines and apparatus has been advanced to a state of efficiency and both in respect of applying the latest development of science and art and of training the staff of operator and experts our telegraphic service can well stand comparison with that of Western countries.

The following figures will serve to indicate the main features of the development of this important branch of communication work in Japan:—

	No. of offices.	Mileage roules.	Total mileage of lines.	No. of telegrams (*thousand*).
4th year	4	19 *ri*	19 *ri*	19
14th year	169	1,871 „	4,666 „	2,586
24th year	524	3,244 „	9,245 „	4,674
34th year	1,856	7,361 „	31,170 „	16,221

NUMBER OF TRANSMISSION OF TELEGRAMS AND RECEIPTS AND DISBURSEMENTS.

Year.	Telegrams per 100 people.	Receipts.	Disbursements.	Disbursements per 100 *yen* receipts.
		yen.	*yen.*	*yen.*
27th... ...	19.7	2,185,011	1,196,779	54.8
28th... ...	21.8	2,405,570	1,297,135	53.9
29th... ...	25.6	2,449,188	1,584,575	64.7
30th... ...	32.6	3,107,780	1,995,237	64.2
31st	34.3	3,254,717	2,734,156	84.0
32nd ...	32.2	3,753,011	3,442,211	91.7
33rd... ...	36.7	4,307,082	4,007,524	93.0
34th... ...	35.6	4,077,004	4,365,048	107.1

II. ORGANIZATION OF THE SERVICE.

THE description of our telegraph system will not be complete unless some brief history of the official organization is given. Here are a few remarks about it.

Central Office of Control:—At the outset the telegraphic business was under the care of the Foreign Office while at another time the defunct Department of Civil Affairs undertook the business, for in those days there was no independent office to take charge of the service. Neither were there officials specially appointed for the service and officials on duty at the lighthouses were generally made to undertake the telegraphic business in addition to their own principal duty. In the 4th year the Public Works Department was established and the office specially devoted to this business was for the first time created under control of that Department. The Department of Communications, established in the 18th year, was next made to manage the telegraphic service, and this has been the case since that time.

Though the seat of the controlling power in this service thus underwent frequent changes the Government has strictly adhered to the principal set down from the first and has made it as a business monopoly of its own. Now it is universally admitted that the telegraphic business to be efficient should be run as a state enterprise, and yet, owing to some misarrangement at first there are even at present some countries whose governments can not yet succeed to secure the right of monopoly of the service. It was very fortunate therefore that Japan adopted from the first the State monopoly system.

Local Offices of Control:—The Department of Communications established at first in the principal places throughout the country offices which were made to supervise the subordinate telegraphic offices respectively placed under them. Subsequently these supervising offices were kept only at places possessing local administrative offices. At present these supervising centres number eighteen in all, and these, subject to the control of the central office, look to the business carried on in their jurisdiction.

Office of Telegraphic Operations:—The offices that have charge of the technical part of the business, were known by different names in different periods, but since they have been amalgamated with post offices in the same districts they have been known by the name of post and telegraph offices, divided into three grades. There are also offices which deal with the telegraphic service alone. These offices are of two grades, namely second class and third class.

a. First-Class Offices:—These are the eighteen supervising offices mentioned in the foregoing part of this section, and they are known by the name of First-class Post and Telegraph Offices. Besides attending matters of ordinary post and telegraph service, they also undertake the work of telegraphic construction. The First-class Office located at Nagasaki is one of special importance, in that it is the terminus for foreign telegrams coming to Japan or wired from Japan.

b. Second-class Offices:—These number over ninety and are located at so many cities and towns throughout the country. They are principally devoted to dealing with the technical part of the business.

c. Third-class Offices:—These being located at places which are less flourishing than others possessing either First-class or Second-class Offices, receipts are often found to fall below disbursements, so that there is not much room, if indeed any at all, for improving the service out of the profits of the offices. In view of this consideration, the special arrangement is made with regard to their organization, and they are generally run as contract work. The chief of an office of this grade draws no regular salary but simply gets a certain amount of allowance. Appointed by the Minister of Communications according to the prescribed rules of appointment, the chief gets from the Government a certain amount of money with which to work and manage his office. Besides, he is under obligation to supply an office at his own expense. The offices of this lower grade number about 3,900 throughout the country, and one-third of them undertake to attend to the telegraphic service.

Subsidiary organs:—Subsidiary organs exist in the shape of telegraphic agencies, one kind of which consists of either private or Government enterprise. The private enterprise is generally supplied by railway companies which maintain the telegraphic service at their stations. As a result of certain arrangement these special telegraph offices offer their service to the general public, and for this service they get from the Government a sum of money equal in amount to not less than one-third of the fee they receive from the applicants, the rate of fee being equal to that enforced at Government offices.

The agencies maintained by the Government are found in places not yet possessing regular telegraph offices. Lastly there is another kind of agency of a lower grade, which simply receives messages for transmission from people, to forward them to the nearest telegraph office. These agencies, also conducted as contract work, are maintained in the principal parts of a large city.

Telegraph Offices Abroad:—Besides all those offices maintained in the interior the Government also possesses a telegraph office at Fusan, Seoul, and Jinsen, all in Korea.

Such is, in short, the organization of our telegraphic service, and though a large number are being newly established every year, still on account of a greater expense than in the case of post office, the total number does not come up to that of the other kind of offices. Nontheless the telegraph offices of all grades total about 2,000 throughout the country. In more thickly populated districts of Japan proper, that is in Kyūshū and Shikoku the offices are at the rate of one per 11 square *ri* approximately. It is to be conceivable that with the work advancing at the present rate, all the post offices in Japan will be connected before long with telegraph lines.

III. FOREIGN TELEGRAPH.

Previous to this, when International Telegraph Conferences were held abroad, our Government had sent in accordance with the advice of the Ministers of Holland, Austria, Denmark and others, a delegate to attend the meetings, to listen to the debates and make investigations. At this time our Government did not yet see the necessity of joining the International Telegraph Convention, but it agreed to become a member in January 12th year through the intermediary of the Russian Government, by which time our telegraph department had made considerable progress. Japan dispatched a delegate whenever an international conference of this service was afterward held, and not unfrequently Japan offered various suggestions on occasions of such conferences. The position of Japan in the International Convention suddenly underwent a great change after the Japan-China war, for after that time Japan's share in the

central maintenance fund that had been previously one of the fourth class rate was raised all at once to one of first class. The Japanese Government was for the first time officially represented at the International Telegraph Conference held at London in June 1879, and it has never failed to be represented at the conferences held since that time. The International Telegraph Convention was first concluded between the European countries whose delegates assembled at Paris in 1875, in order to provide some necessary measures for international telegraphic communication, and the delegates agreed to adhere to the provisions then made. In the 17th year Japan joined the International Convention for the Protection of Submarine Cables.

The foreign telegraph service was commenced in the 4th year when the Great Northern Telegraph Company laid cables between Nagasaki, Shanghai and Vladivostock. After the completion of a telegraph line between Tokyo and Nagasaki a year after, the Japanese telegraph offices accepted foreign telegram, but, at that time, as our country had not yet joined the International Telegraph Convention it could have no direct communication with foreign countries; the transmission of messages was limited therefore by the boundaries of the Empire; all communications beyond Nagasaki being entrusted to the Great Northern Telegraph Company. Since the celebration of the progress of our domestic service by an official opening ceremony in March 19th year, all international communications have been transmitted directly by our telegraph offices in conformity with the stipulations of the International Telegraph Convention. In the 16th year, an agreement was entered into between our Government and the Government of Korea for laying the Japan-Korea cable. The laying of the cable was undertaken by the Great Northern Telegraph Company, and it was opened for communication in February of the following year.

It was in the 12th year that Japan joined the International Telegraph Convention. Korea subsequently constructed lines in its interior and, joining with the Japanese telegraph offices, entered into connection with the service of the rest of the world. However as that country did not yet join the International Telegraph Convention and was not acquainted with the particulars about foreign

telegrams, Japan had to bear the responsibility for the foreign telegrams coming from or destined for that country.

Japan next approached the Great Northern Telegraph Company and induced it to add new cables connecting Nagasaki with Shanghai on one hand and with Vladivostock on the other. Amidst all these active expansion enterprises of Japan one thing that had always been regarded with regret by the Government was the fact that the cable laid between our two outlaying islands of Tsushima and Iki belonged to the Telegraph Company mentioned above. The charge imposed on this particular section was far higher than that prevailing in the rest of Japan. This itself was highly inconvenient as it even interfered with the uniform rate system adopted by our Government, but regarded in another light, that is that it affected Japan's autonomy in its own telegraphic administration, the question was one even of graver moment. Moved by this consideration the Government caused its commissioners to repeatedly open negotiations with the company, to persuade it transferring that particular section to Japan. The negotiations were at last crowned with success and in the 24th year the cable became Japanese property. Thus the telegraphic administration over all the Japanese dominions, as they then existed, was brought under the sole control of the Government, and its autonomy in this respect was now for the first time complete.

In the 31st year the Government purchased from the Chinese Government the cable laid between Formosa and Fuchow, and this line was made to attend to foreign telegrams. It will thus be seen that though situated in a remote corner of the Far East, Japan began to be connected with the Asiatic continent by four different cables, that is with those reaching Vladivostock, Shanghai, Fusan and Fuchow. It is easy to see that when the Pacific cable has been laid, as is proposed, between Japan and America, Japan will occupy a central position linking together the two hemispheres and will therefore become an important medium of communication for the world's trade.

The foreign telegrams being regulated by the International

Convention, and the rules as enforced in Japan in the service being identical with those universally adopted for all the countries on the list of the Convention, it would be superflous to make any further reference to this subject.

The activity of foreign telegraph service in Japan has advanced with great strides. About thirty years ago the number of this kind of telegrams dealt with in Japan did not exceed 1,000 a year. The increase of the number has kept pace with the increase of foreign intercourse. In the 16th year, therefore, the number became 33,000; in the 26th year to 110,000; and in the 34th year to 720,000. This growth of our foreign telegraph service is an index to the development of our national prosperity and trade.

The foreign telegrams dispatched by Japan are transmitted along two main routes, one going to Vladivostock and the other to Shanghai, Nagasaki being the common starting point for the two. The former is called the northern line and the latter the eastern line, and an applicant may select at will which of the two the telegram sent in by him should take. The time occupied in transmission does not exceed 24 hours at the most while it may reach its destination at ten hours or so. The distance separating Japan from Europe and America, though amounting to several thousand miles, has been reduced to a matter of only a small number of hours, thanks to the benefit of this communication service.

IV. CONSTRUCTION OF TELEGRAPH LINES.

In the early part of the work of telegraphic construction generally ordinary roads or railway tracks were used in the construction of the lines, and the use of privately owned land was avoided so far as circumstances permitted. Therefore in those days no special rules about this work were in force, and it was in the 7th year, by which time the necessity of using private land had become unavoidable with the expansion of the business, that a regular arrangement was made as to compensation in case such land was requisitioned for telegraph

work. Similarly, coming to the 17th year, a regular arrangement was drawn up as to the disbursement of necessary expenses when the location of a telegraph line was to be removed in compliance of the request of private individuals. The requisition of private land that had formerly been settled by usage was embodied by Law No. 19 issued in the 22nd year into a regular system. The law in question provided rules about the requisition, but this measure involved another enactment in the following year, the Telegraph and Telephone Lines Construction Regulations. The fact was the enforcement of the law of requisition was attended now and then by no small inconvenience when the owner of a land over which the wire passed wished to undertake some architectural work upon it. These regulations continue in force to this day.

The telegraph lines were constructed, as already mentioned above, between Tokyo and Yokohama and Ōsaka and Kobe about the 2nd year. But this work was, strictly considered, merely experimental. It was in the construction of the Tokyo-Nagasaki and Tokyo-Aomori lines that the work was first begun in a regular way. The construction of the two lines that were started in the 4th year was completed, next the work of extending the Tokyo-Aomori line to Hokkaidō accross the Strait of Tsugaru, was started. Two lines were to be laid between Imawake harbor and Fukushima Bay, and the Great Northern Telegraph Company was made to undertake the work. The route, together with the Hakodate-Sapporo line, was to form part of the trunk route of Japan, and it is along this route that all the First-class Offices are situated to-day. The extension of the lines through the districts in Kyūshū occurred between the 7th and the 10th year; the construction of a circuit round Shikoku was in the 9th—12th years, and the connection of San-in, Hokuriku and Uzen and Ugo districts with the rest of the country took place in the 9th—15th years. Then between the 17th and the 25th years a line was constructed round the island of Hokkaidō.

At the end of the 34th year the total lines in operation

on land were at the rate of 2.57 *ri* per 10 squre *ri*, the exact figures of the land and submarine lines being as follows :—

	Length of the lines.	Lines in operation.
Lines on land... ...	6,377 *ri.*	29,888 *ri.*
Submarine land ...	2,087 miles.	2,679 miles.

Thus far Japan had not possessed any underground lines, but in such thickly populated cities as Tokyo and Ōsaka the construction of this kind of lines has become necessary. Especially is this the case in Tokyo. The lines diverging from the central office in Tokyo to all the parts of Japan number more than 170, and they branch off to their respective destinations at point only a short way off from the office, and in the streets where traffic is most active and houses are built closely together. The existence of electric light wires and telephone wires makes the matter still worse. This is regarded as highly inconvenient, and the matter will be far from mended if the telegraph and other lines are additionally constructed according to the aereal method. The work of preservation alone would not be an easy task. Indeed there are hardly rooms left even at present to admit the further construction of new lines. Consequently it was decided to convert at least a part of the aereal lines to underground system and in the 35th year this work was started for a portion of the Central Office and Shinagawa section, which forms the first station of the Tōkaidō telegraph route. The work is still going on.

From the 2nd year when the line was first constructed between Tokyo and Yokohama the work of construction was carried on till the 10th year under the supervision of foreign experts with Japanese assistants under them. These assistants obtained in course of time sufficient knowledge to undertake the work on their own responsibility. At the same time the graduates of the course of electric engineering increased in number, and they were able after a time to take charge of the work without the help of foreign experts. As a natural result of this advance of Japanese in the technical and scientific knowledge of electricity, the service of the foreign experts was dispensed with from about the 13th year. However

Japan was still obliged to depend upon the service of foreigners in the work of laying cables, this being far more difficult than ordinary telegraph construction, while any fault at first committed in the construction leaves a serious consequence afterward. Therefore the Hakodate-Aomori cable and the Shikoku cable were constructed by foreigners, and they were also made to undertake any repairs that were required afterward. In course of time the Japanese experts became fully qualified for the work, and the laying of additional cables at the Strait of Tsugaru and Shikoku was done by them, as also the work at Gotō, Hizen. But by far a more important work accomplished by them was the laying of cables between Ōsumi and Formosa, and indeed this latter feat deserves special mention in the history of our telegraph business, as it constitutes a permanent proof of the advance of telegraphic engineering in Japan. The work was planned by the War Office as it was one of special importance in connection with the maintainence and exploitation of the new territory of Formosa. In the 28th year soundings were carried out, and in the 29th year the cable steamer *Okinawa Maru* which had been ordered into a dockyard at Glasgow, arrived. The work of laying the cable as based on the soundin was started at once. To be more precise the work was launched in July of the same year, and by September of that year the laying was finished for the Ohama-Oshima and Oshima-Okinawa trunk lines and the Ohama-Tanegashima and Tanegashima-Yakujima branch lines. As the condition of the sea began to be too unfavorable by that time to admit of the continuation of the work, it was suspended, to be resumed in April of the following year, the weather then again becoming propitous for the work. The completion of the remaining portion of the trunk line, that is to say, the Okinawa-Formosa section was carried out with creditable expedition, as it was concluded on May 30th of the same year. Next the construction of the remaining branch lines on the programme, Yayeyama-Ishigaki-Nishiomotema section and the extention of a line from Oshima to Okiyerabe *via* Tokunoshima were finished.

The trunk line extending from Ōsumi to Formosa measures 870 nautical miles in length and the branches 175.3 miles, making in

all 1,045.3 miles. The trunk line consists of two circuits, one being the Ohama-Naha section and the other the Naha-Kelung circuit. It starts in Honshū at Ohama, Ōsumi province, and reaches Okinawa *via* Oshima. Then it reaches *via* Yayeyama the place called Hasshakumon, Formosa, being separated by a little over one *ri* from Kelung. This trunk line contains more or less land lines constructed on various islands lying on the route.

A descriptions will be next given of the apparatus and materials used in our telegraph service.

WIRES:—At first No. 8 iron wires were exclusively used, except in places where a special sort of wires was required. But with the large creation of Third-class Offices it was thought advisable to economize on the cost of construction so far as circumstances admitted, and hence No. 11 iron wires were afterward adopted. This grade of wire was first used in constructing the Utsunomiya-Nikko line in the 19th year. For several years afterwards these wires were exclusively used in preference to others. They are no longer used now, except in constructing street lines and such short lines. The fact was that copper wires were judged to be much better than the iron ones. Evidence confirming this fact was obtained quite accidentally, during the course of some experiments for testing the telegraph-telephone transmission work and long distance telephone service. It was to carry out this test that in the 23rd year two lines of No. 12 hard copper wires were constructed between Tokyo and Ōsaka. It happened just at that time that the telegraph business between the two cities was unusually busy, so that the two lines just constructed at that time for another object were temporary utilized for the ordinary telegraph service. The result obtained emphatically demonstrated that the copper wires possessed better power of transmission than the No. 8 iron wires. The rate of speed did not differ much when instruments worked by hand were used, but with automatic instruments the copper wires showed about double speed. The experiments carried out in Ōsaka in the 24th year proved that whereas 1,076 letters could be obtained per minute when the copper wires were used the corresponding number for the iron wires was only 491. Therefore, though more costly than iron wires, the copper wires were found to be far more effective in time of pressure of business.

In cities possessing a large number of electric wires, rubber wires or lead covered paper aerial cables are used instead of ordinary naked aerial wires, or otherwise, owing to the crowding of telephone and electric light wires, the use of ordinary wires is judged risky for the efficiency of the service.

Telegraph posts:—*Sugi* (Cryptomeria japonica) *Hinoki* (Chamæcyparis obutosa.) and other kind of trees are not available for the posts until after they have grown 30 to 40 years. The period of preservation does not exceed six or seven years in ordinary circumstances. Here comes in the necessity of providing some devises for prolonging that period. At first Japan adopted for this purpose the charring and tarring methods, but after the experience of several years they were found to be not quite satisfactory, so that they were discontinued in the 12th year. A tarred post could be preserved for only seven or eight years. An injection of copper sulphate was next adopted. It may be remembered that this method was discovered in 1871 by a French expert and consists of injecting solution of copper sulphate into the trunk of a timber. This method was first tried in the 12th year when the Tokyo-Kofu line was constructed. As it was judged to be satisfactory, besides being cheap, in the 13th year the central authorities ordered the electric engineers to adopt this Boucherzing treatment whenever a new line was to be constructed or an old one to be repaired, and the system began to be universal throughout the country. Sometime, however, owing to one cause or another the treatment was more or less neglected, but at present it is being carried on actively, as the supply of timber has become scarce and therefore more costly than before. Besides copper sulphate treatment with carbolium, creosote and other chemical compounds is being experimented upon.

As to the exact period of the preservation of copper sulphate-injected poles, it is not possible to give a final verdict, the experiments not yet being concluded. So far as the result thus far obtained goes, this treatment seems to be far better than the other methods previously used, for in ground of a proper nature the poles thus treated appear to last 15 to 16 years, that is to say, twice the period of non-injected poles.

Insulators:—At first foreign-made insulators commonly called

the earthenware insulators were used. These, however, were found to be inferior in quality and not quite satisfactory for preventing leakage, while they were rather costly. The consequence was that the authorities gave orders to the potters of Arita, Imari, Seto, etc. to make insulators. They succeeded in making one of good quality and cheap in price, so that from about the 8th year the home-made insulators began to be used in place of the imported articles, and at present these are exclusively used. This may be regarded as the first step in the improvement of the insulator service.

These insulators were generally of single-insulator style, and they were used for all lines irrespective of the distance of the circuit. This kind of insulator was discovered to be somewhat defective in operation and to cause leakage for such a long circuit service as the Tokyo-Nagasaki or the Tokyo-Hakodate line. In order to prevent this leakage, it was decided to adopt double-insulators and in the 16th year these were used for the Tokyo-Nagasaki circuit. The result was highly satisfactory, the leakage and the danger of mixing being considerably minimized. Consequently not only with case of new lines but also in the case of those already in existence, the single-insulators were gradually superseded by the double, and this change marks the second stage in the improvement of the insulator-service. Another merit of the double-insulators is their greater durability, the ratio of breakage of double-insulators having been ascertained to be 2.6 per cent. against 3.9 of the other.

The bolt used for the cup of the insulators has heretofore been made of a mixture of sulphur and brimstone, but this is not entirely satisfactory, so that experiments are now carried on with the object of discovering a better composition.

Apparatus:—It was in the 5th year of Kaei (1852) that the telegraphic apparatus was first introduced into Japan. Two sets were presented to the then existing Shogunate by the embassy of America. They were, however, regarded at best as a kind of mysterious toy and were never put in practical use, as already mentioned in a previous section.

The apparatus used for the Tokyo-Yokohama line on its construction in the 2nd year was the Bregnet needle machines, ordered, with all the other apparatus and materials required in the work,

from abroad. In the 2nd year two sets of the Morse Embosser were presented by the Austrian Government to the Emperor of Japan, and these were used on a service connecting the Head Office at Tsukiji with the Foreign Office. When in the 4th year the telegraph business was transferred to the control of the Telegraph Office, it was decided to adopt the Siemens and Morse apparatus, the machines and other necessary accessories being ordered from England. These apparatus are yet to be seen in many parts of the country. In the 6th year a workshop for making telegraphic apparatus was first established, the work being carried on under the direction of a foreign expert. It mainly consisted in making repairs. The expert was made at the same time to teach the science to the assistants under time. For the first time in the 11th year Japan manufactured Morse instruments herself, ten sets in all. They were entirely manufactured by hand, as the complete set of machinery required in the work had not been provided at the workshop. The great labor and difficulty experienced in this work may be easily imagined when it is remembered that it required a whole week's labor to turn out a single straight screw. Later on things improved and the knowledge of making the Morse and other apparatus has made so much of an advance that at present Japan supplies almost all the home demand for the instrument and its accessories. In the 13th year a wire-shop was established and the wires used in the service were manufactured. This business was transferred to a private concern in the 20th year. Manufacture of copper wires is carried on extensively in Japan, but in iron-wire work we have not been so successful, and in fact for the supply of this particular kind of wires Japan has to depend even now on the help of foreign countries.

The history of the work of telegraph machine-making in Japan from the inception of the service may be divided into three stages. The first period extending from the 6th to about the 13th year may be considered as the time of training and apprenticeship; the second period extending to about the 20th year as the period of imitation, and the last period which came next may be regarded as the period of improvement and of original work. Improvements and orginal work began to be most *en evidence* since the 29th year.

DUPLEX TELEGRAPHY :—The duplex system was first used in the 13th year for the Yokohama-Kobe line, and soon after with a relay set at Kobe the system was utilized for the Yokohama-Nagasaki circuit. In the 21st year the same system was used both for the streets of Ōsaka and for the Sapporo-Otaru line. It was after the 26th year and the introduction of the use of the retardation-coil that the duplex method began to be worked with special success. The considerable improvement which had been effected in all technical parts of the business of course contributed very much to this success. All of these coils in use were manufactured at home, with the single exception of that in use on the Sapporo-Otaru circuit. Wheatstoe's automatic recorder was first introduced in the 15th year, and was used in the Tokyo-Ōsaka service. Its practical utility was confirmed with special effect in the 22nd year and as a result of its use in No. 3 line of the Tokyo-Ōsaka service. Though the machine used at that time was identical in principle with that imported seven years before for the first time from England, the construction was much improved. With the recorder it was found possible to receive 400 words per minute, the current used being one of 25 mili-Ampier. This recorder is still used in almost all the parts of the country. About that time the Shunt and Condenser automatic machines were experimentally used. Coming to the 24th year the automatic machine was put up both at Ōsaka and at Shimonoseki, and the transmission was undertaken for the first time according to the duplex automatic system. It was at that time that the retardation coil was first used for duplex telegraphy. The automatic apparatus was also about that time used for the Hakodate-Aomori and the Ōsaka-Nagasaki circuit. The same mode of operation proved highly efficacious on the occasion of the Japan-China war when the transmission of messages between Tokyo and Hiroshima was unusually brisk.

At first the Morse inker was universally used for receiving the transmission, but the experiment carried out in the 20th year at the Kanaishi Telegraph Office in Kaga occasioned the making of a new departure in this connection. The use of a telephone apparatus was first tried between that office and Kanazawa, with excellent results. This substitution of telephone apparatus for the Morse inker was at-

tended by many advantages. In the first place the operators require no special training when this apparatus is used and moreover expenses can be cut down very much. Taught by this experience, this apparatus is generally used at present at all the offices which have not to deal with many messages. The apparatus now used for the purpose is one of Delville or solid back type, the Gower-bell and other apparatus being now out of date.

The use of paper and ink in the Morse inker very much detracts from the merit of the instrument, which moreover possesses some other defects. Therefore in the 27th year the sounder machine was first used instead of it in Tokyo, and was also used experimentally in many other place. The result having been satisfactory, it is now used extensively in Japan.

When in the 30th year the work of laying a cable between Osumi and Formosa was in progress the reflecting galvanometer adapted to a submarine cable transmission was adopted, but as this apparatus was not fit for active work, in the 32nd year it was superseded at the three offices of Ohama, Naha and Kelung by Muirhead's syphon recorder, so that a complete duplex system was commenced between the three offices in question. In the intermediary stations of Kuji and Yayeyama reflecting apparatus is still in use and the business is carried on by the simplex transmission system. The receiving instrument in these two intermediary stations is disconnected from the circuit while the two termini are carrying on the transmission and receiving by the duplex method, so as to bring them into direct communication with each other. The operation at the intermediary stations is limited to certain hours in the day, and as the business between the two is not brisk there is no danger of their affecting the efficacy of the service between the two great termini.

The automatic repeater contrivance was first adopted at Kobe, and afterward used for the foreign telegram line between Yokohama and Nagasaki, also at Aomori to do service on the Tokyo-Hokodate line. The contrivance was of the ordinary Morse system, so that the speed was very slow. Consequently this was discontinued for the Yokohama-Nagasaki line, and its operation was made one of direct communication, by the use of the double current key. This alteration somewhat increased the speed of the working. The adoption in the

26th year at Aomori of the latest repeater board as a substitute of the old system, marked an advance in repeater operations. The double current automatic duplex repeater was next adopted at that place, and was made to supplement the working of the Tokyo-Hokodate circuit. With the greater activity of the business and the construction of new lines, the use of automatic repeaters began to be felt to a greater extent than before. Consequently in the 30th year a high grade simlex repeater was adopted for No. 1 of the Tokyo-Sapporo service, and double current duplex repeaters for No. 2 of the same service. Similarly in the 31st year in double current duplex repeater was used for the Ōsaka-Kagoshima line, and in the following year the same contrivance was introduced for No. 2 of the Tokyo-Hokodate service, Niigata-Hakodate, Ōsaka-Ohama, and No. 1 and 2 of the Tokyo-Nagasaki lines. Then coming to the 33rd year in Hakodate-Nemuro, Tokyo-Ohama and Sakata-Hakodate line got repeaters of double current single system; in the 34th year the Tokyo-Otaru line obtained a high-grade repeater. In that year automotic telegraphy instruments and repeater apparatus were distributed among the principal telegraph offices, those machines, to be used as reserves. The quadruplex automatic repeater is now being experimented with.

In the 15th year the double current key system was first used between Tokyo and Nagasaki. The outbreak of trouble between Japan and Korea occasioned this innovation the object being to expedite the transmission of messages the number of which had suddenly increased. Subsequently this key was used for the foreign telegram line between Yokohama and Nagasaki, but up to the 27th or 28th year the contrivance was not in much demand, owing to the fact that lines of long circuit operation were not many. The condition of things has undergone a marked change since that time, and with a large increase in the number of long circuit lines the double current key has began to be in greater demand than before.

In the 23rd year a number of quadruplex telegraph instruments were purchased both from England and America, and the two were tested both at Tokyo and Nagoya. At Tokyo also experiments were carried out with the quadruplex automatic repeater. In the 25th year, as a result of those experiments, the quadruplex system was first used for the copper wires of the Tokyo-Ōsaka lines. In the follow-

ing year this instrument was also adopted for the Tokyo-Sendai and the Ōsaka-Shimonoseki lines, and its use has therefore become quite extensive. What is to be noted about it is that these instruments are now being made in Japan, and that the originals are to some extent improved upon.

In the 24th year, a contrivance for facilitating the superintendence of the operations was adopted, and this testing machine which, by the way, has been manufactured at home was set up at Tokyo and Ōsaka in the 32nd year. This example will be followed in the other principal offices.

The synchronic signal of noon that had been carried on by hand-worked machine began to be conducted by an automatic apparatus made in Japan. The subsequent appearance of the double current signal system required the improvement of the instrument, so that coming to the 32nd year the double current automatic synchronic signaller was devised and manufactured, and operated with excellent result at the three offices of Tokyo, Nagoya and Ōsaka. The instrument has been distributed among all the other principal places, and this mid-day signal is now working quite satisfactory.

Wireless telegraphy was first investigated in the 19th year and in June of that year it was experimented upon with success along the upper banks of the river Sumida over a distance of 120 yards and at the coast of Tsukiji at a distance of 80 yards. Coming to the 31st year the wireless telegraphy of electric current system was experimented in the Bay of Tokyo, and then in the following year between Tsukijima and Shinagawa fort, a distance of 3 nautical miles. The result was sati-factory in both cases. Further on in the 33rd year a similar experiment was carried out in the same bay and between Yawata, Kazusa province, and Funabashi, Shimōsa province, the two places being 11 miles apart. This and the experiment carried on between Funabashi, mentioned above, and Otsu, Sagami province, a distance of 34 miles, were similarly successful. Similar experiments since undertaken have been attended with satisfactory results, so that arrangements are now being made to carry out experiments on a large scale and over long distances. The cable steamer *Okinawa Maru* is about to be fitted with the instrument.

The universal battery being more economical than the ordinary one, it is now taking the place of the old battery. During the last fourteen or fifteen months, 420 chrolide batteries have been used with excellent results in place of the 6,645 Daniel batteries that had been previously in use. This new arrangement will be extended to all other offices employing the Daniel's.

CHAPTER V.—Telephone Service.

General Remarks—Technical Work.

I. GENERAL REMARKS.

Telephones were first used in this country in the 10th year (1877), and they were principally short distance telephones. However after the experiment carried out with success in the 21st year between Tokyo and Atami, telephones began to become largely used as public means of communication. The scope of the operations was next extended to as far as Shizuoka, and then to Ōsaka, and with success in both cases. At first there was talk of leaving the telephone business to private enterprise, but this idea was given up and it was decided that the business should be undertaken by the Government as part of the telegraph enterprise. The working principle being settled in that way, the Government at once proceeded to carry the business into effect. In December of the 23rd year the service was opened in Tokyo and Yokohama and also between the two places.

The people did not appreciate at first the benefits of the service and the number of subscribers was therefore extremely limited in the two cities. This state of affairs lasted for only a short while, comparatively speaking, and in the 26th year when the service was opened at Ōsaka and Kobe and between these towns, the number of applications for subscription attained a considerable number. Gradually the value of the service began to be appreciated, so that by the 28th year, that is five years after the advent of the telephone business, applicants who could not yet get telephone connection numbered more than 4,000. Meanwhile petitions arrived at central authorities from many cities in the provinces requesting that a telephone service should be opened in their districts. In consideration of this and other facts of a like nature, the Government made up its mind to largely expand the scope of the business. Accordingly it

drow up, with the consent of the Diet, a programme to devote during the seven years ending the 35th fiscal year a sum of over 12,800,000 *yen* to the work of expanding the scope of the business. The programme contemplated the establishment of the business in Kyoto, Nagoya, Nagasaki, Shimonoseki, Fukuoka, Sapporo, Hakodate, Sendai, Kumamoto, etc., to extend limit of the business already carried on in other cities, and finally to bring all those cities into telephone connection with each other. Acting upon that plan, in the 32nd year the long distance service was opened between Tokyo, Yokohama, Ōsaka, Kobe, Kyoto, and other cities, and the scope of the business in those cities was besides enlarged.

As already mentioned above all matters relating to telephones were dealt with according to the provisions of the Telegraph Service Regulations, so that no definite legislative provisions existed for the administration of telephone business. As this was regarded inconvenient, provisions relating to telephones were distinctly set forth in the Telegraph Law enacted in the 33rd year. Then the Telephone Exchange Rules that were drawn up on the occasion of the commencement of the service, and more or less amended subsequently, were also thoroughly recast in the same year.

About thirteen years have elapsed since the service was inaugurated in Japan, and the record of progress during that interval of time has been something remarkable. A comparison between the first five years ending the 28th year and the later five years ending the 34th years will at once make this point apparent.

Number of Telephone Offices:—At the end of the 23rd year there were only two telephone exchange offices and 16 telephone call offices; these figures grew at the end of the 28th year to four and 24 respectively, to 25 and 179 at the end of the 34th year.

Number of Subscribers:—At the end of the 23rd year the subscribers numbered only 343; advanced to 2,858 at the end of the 28th year, and further to 24,887 at the end of the 34th year.

Ratio of Subscribers per 10,000 People:—At the end the 23rd year the ratio of subscribers per 10,000 people was only of two, to be increased 14 five years after, and lastly to 61 at the end of another five years.

Ratio of Number of Families per one Subscriber :— This ratio is greatest in the city of Otaru, where at the end of the 34th year the number of families per one subscriber was 15 representing 48 inhabitants. In Tokyo the ratio was 31 representing 139 people.

Number of Non-connected Subscribers :—The number of applicants for connection being beyond the scope of the provisions, there are quite a large number of non-connected subscribers. At the end of the 28th year these non-connected subscribers numbered over 4,000, and the number rose to no less than 22,800 approximately at the end of the 34th year.

Length of Telephone routes and lines in Operation : —At the end of the 23rd year the telephone circuits totalled 50 *ri* with the lines in operation extending to 331 *ri*; at the end of the 28th year the figures rose to 178 *ri* and 2,156 *ri* respectively, to be further advanced after another five years to 915 *ri* and 35,250 *ri* respectively.

Telephone Receipts and Disbursements :—The progress of the financial side of the business was quite commensurate with that of the technical side. In the year of inception ordinary receipts fell short of disbursements by over 2,300 *yen*. This was the only case of financial failure, for subsequently the balance was always on the side of excess of receipts. This excess amounted to about 7,900 *yen* in the 24th year, grew to about 36,800 *yen* in the 28th year, and lastly to 634,400 *yen* approximately in the 34th year.

The following table will give a complete survey of the financial progress of the business from the 25th year :—

TELEPHONE RECEIPTS AND DISBURSEMENTS.

Year.	Receipts.	Disbursements.	Balance in favor of Receipts.
	yen.	*yen.*	*yen.*
25th	48,069	32,722	15,347
26th	94,959	52,849	42,110
27th	132,967	75,229	57,738
28th	142,431	91,549	50,882
29th	150,444	113,605	36,839

Year.	Receipts.	Disbursements.	Balance in favor of Receipts.
	yen.	*yen.*	*yen.*
30th	228,505	179,612	48,893
31st	574,332	324,038	250,294
32nd	1,035,957	630,474	405,483
33rd	1,513,912	964,900	549,012
34th	1,810,411	1,175,982	634,429

II. TECHNICAL MATTERS.

A. Street Telephone Lines.

Naked overhead wires:—When the service was first opened in the 23rd year, owing to the small number of applicants the work was on the overhead wire system, B. W. G. No. 18 hard copper wires being used. From about the 25th year No. 17 hard copper wires were exclusively adopted, though in such places as Hokkaidō and the north-eastern districts of Honshū which are liable to snow storms No. 14 zinc coated iron wires had to be used. Then in Tokyo also No. 17 wires were found liable to injury from storms so that since the 31st year No. 17 silicated copper wires have been used.

Overhead Cables:—From about the 24th year overhead rubber cables were adopted for places traversed by many electric wires, while with the advent of the telephone service expansion programme in the 29th year the underground cable system was adopted for Tokyo, Ōsaka, Yokohama, Kobe, Kyoto and Nagoya. This underground portion was, however, to be confined to trunk lines, the rest to be made with lead-covered paper cables. For other telephone offices overhead cables of the same kind are to be employed, though rubber cables are used when the wires are stretched across the street and in places where only a short distance has to be traversed. The cables are generally of two kinds, one containing 100 centres and the other 50. On rare occasions one with 26 centres is used.

Underground Wires:—Underground wires have, as mentioned above, been laid in Tokyo, Ōsaka, Yokohama, Kobe, Kyoto, and Nagoya since the 29th year, the length of these wires extending

with the lapse of years. For conduits iron pipes alone were at first used, but later on earthenware pipes have been adopted at the same time, one or the other to be used according to the requirement and circumstances of the locality. In Tokyo, Ōsaka and Yokohama iron pipes are generally used, but in Kyoto, Kobe and Nagoya earthenware pipes are the rule. The iron pipes are made of cast iron and are imported. The earthenware pipes are of two kinds, one made at home and the other imported from America. Those coming from America are MacRroy conduits, and these are exclusively used in Nagoya and some times in Tokyo to some extent.

The underground cables of lead-covered kind:—They contained at first 200 centres, but afterward they were increased to 300, and lately to 400.

Circuit System:—At first the single wire system was adopted but from the 29th year all the new connections were constructed according to the double wire system. In time the old single wire connections were superseded by the double system ones, so that at the present time all connections consist of the double.

Poles:—Both in the urban and suburban districts *Sugi* timbers are used for poles, though iron poles are used for the junction of cables and naked wires. The timber poles are either boucherzinged, or are coated with a disinfecting preparation.

Arms:—Arms are made of *keyaki* wood for a pole supporting not more than eight wires, but when the number is more than 12 an iron arm is used.

B. Suburban Telephone Wires.

Routes:—The lines are all of naked ærial wires especially constructed for the telephone service, though the lines that are not of much importance may be constructed in the spare rooms of the existing telegraph poles. Sometimes the existing telegraph wires are used, so that they are made to fulfill the service both of the telegraph and the telephone business.

Circuit:—It is entirely on the duplex telephone system. In a circuit of short distance the double telephone method is used, while in another that is operated comparatively little, four offices are connected by one circuit. Then telephone and telegraph service is

sometimes made interchangeable as to the utilization of each other's circuit, the telephone wires doing service for telegraph wires in some cases and the telegraph wires returning the service for telephone in other cases. In the former the Cahilo's system or Schwinsky system is used while the composite system of the American Long Distance Telephone Company is adopted in the latter.

Wires :—Hard copper wires are generally used, the size being B. W. G. No. 8 or No. 12 or No. 14 according to the distance of a given line. For a line of short distance or for a circuit of not much importance, zinc coated No. 8 or No. 11 iron wires are sometimes used, while bimetallic wires or steel wires are used where, as in the case of crossing a river, the distance between the poles is comparatively long. In the strait separating Moji and Shimonoseki 8-centred steel wires insulated by gutter-percha, that is to say, two lines of 4 circuit submarine telephone wires, are used.

C. Apparatus at the Subscribers' Houses and at Telephone Call Offices.

Apparatus :—It was in the 10th year, that is to say, the very next year after Prof. Alexander Graham Bell's invention of workable apparatus, that the instrument was first introduced into Japan. Afterward the Edison, Blake, Belton and Ader types arrived. The Gower apparatus that arrived in Japan about the 20th year having been judged to be well suited for the purpose, for which it was intended, the receivers of this type were adopted for use of subscribers when in the 23rd year the exchange offices were first established in Tokyo and Yokohama. The battery used for transmitter and receiver was of the primary battery type. From the 29th year a magnetic-motor was also used. In the same year in consequence of the expansion of the city telephone business and also of the construction of long distance telephone, it was decided to replace the Gower apparatus by either the Solid-back or Derville type, the former being judged to be not quite satisfactory for working a long-distance service. At present the subscribers get either the Solid-back or the Derville, while the latter is exclusively used either in a city or on a short-distance service. Desk-telephones also use the Solid-back.

At all telephone offices also the Solid-back is a rule, as also is

the case of the automatic call offices established recently in cities or in places situated close to cities.

ARRESTER :—Formerly the Hibberd Fuze apparatus was used, but of late it has been superseded by the No. 12 arrester made by the Western Electric Company, as the latter is more securely provided against the danger of strong currents and of thunder.

BATTERIES :—At the time the Gomer apparatus was used the Derville was used both for transmitter and receiver, but with the disuse of the Gomer the Leclanche was adopted. But for the Solid-back the Fuller battery is used.

D. APPARATUS AT TELEPHONE EXCHANGE OFFICES.

EXCHANGE APPARATUS :—At the time of the commencement of the service the standard type made by the Western Electric Company was adopted, and with an increase of the number of subscribers the apparatus at the exchange offices in Tokyo and Ōsaka was substituted for 26th year with the serries multiple switch board manufactured by the same company. At the same time the Mann's instrument was set up at the Kobe Office. In the 29th year the expansion of the business led to the offices in Tokyo, Ōsaka, Yokohama and Kobe adopting a still more perfect type, this time the automatic recovery composite instrument, also by the same company. This is the type now in use at all the principle exchange offices throughout the country. The authorities are thinking of setting up in the course of this year the lamp signal compound apparatus at the Shitaya Branch Office in Tokyo and of installing the universal battery exchange apparatus at the office in Kyoto. It may be noted that the simple exchange apparatus makes 100 connections; the straight composite apparatus 240, the parallel composite apparatus 300 to 450; and the universal battery composite type 630.

The operator's transmitter was at first the Blake type; then the Berthon and Ericsson were used at the same time, but at present they have all been disused in favor of the Solid-back.

EXCHANGE APPARATUS OUTSIDE THE CITY LIMIT :—At the time of the inception of the service, the standard switch board was used for the Tokyo-Yokohama and Osaka-Kobe service, but was superseded shortly after by the parallel multiple switch

board type, and lastly by the special suburban switch board combining calculagraph to designate the conclusion of a conversation.

Supervision of arresters and protective devices :—With the adoption of the parallel multiple switch board the machine for supervising the operation began to be set in operation. For the testing service at first the test board provided with a mica lightning rod was used, while the paraffin wire was used for cross and premise lines. With the adoption of the parallel multiple switch board No. 4 main distributing boards and the intermediate distributing boards made by the Western Electric Company were adopted. For small exchange offices a handy No. 4 A-shaped protective testing distributing boards and Fugze's boards were adopted.

Electric motors :—In exchange offices where the parallel multiple switch boards are in operation the dynamo contrivance is necessary. At the Offices in Tokyo and Yokohama the gas motor supplemented by electric motor is in use, while in Ōsaka, Kobe, Nagasaki and Kyoto electric motor supplemented by kerosene motor is in operation. For the battery the chloride accumulator is used, though at Yokohama and Kobe the Hagen accumulator is used at the same time. The machine made by the Crocker Wheeler Company is used for the purpose of replenishing the current and of giving signals.

At exchange offices where either serries multiple switch boards or standard switch boards are adopted the monochromic accumulator is used, while for transmission and signalling the gravity bettery is used.

CHAPTER VI.—The Personnel.

For the purpose of training those who have to attend to the management and operation of post and telegraph affairs the Government maintains the Post and Telegraph School. This institution was established in the 2nd year, when a number of the Shubunkan School in Kanagawa-ken were selected to receive instruction in the technical part of the business under Mr. Gilbert, an Englishman. As the machine in vogue at that time was of the letter indicating type, and therefore very simple in operation the students easily mastered the principles of the system. The introduction of far more complicated Morse invention was followed by the establishment of a special course of training, so that a school-room was opened for that purpose in the premises of the Department of Public Works. In the 6th year this was enlarged and made into a regular school, the main school being in Tokyo and a branch school in Ōsaka. The branch school was once abolished, then restored and finally given up, but the head school was expanded in scope under the new name of the Tokyo Telegraph School and made to teach, besides the technical knowledge of communication, the knowledge of electric machines, batteries, wires, etc. as also a practical knowledge of construction. In the 23rd year a course of posts was created in the school to train students qualified to take charge of post affairs. Two years later the standing of candidates for admission was determined to be equal to that of the graduates of ordinary middle schools. In the 32nd year the courses were again changed, into those of management and those of technical operation. In the former the students who were to attend to the duty of managing post and telegraph business were taught while in the other the students were taught the science and practice of telegraphy and telephone. The standing of the courses was at the same time elevated. The course of study extends for two years for both courses, and the graduates are under obligation to give their services to the

Department of Communications for five years dating from the period of graduation. With the revision of the courses in the 32nd year a special course giving special technical teaching on all matters connected with electric communication was created, the students being selected from among these who were attending to the business of electric communication in the Department. The course of study is one year and the term of obligatory service five years.

The graduates trained by the Department since the establishment of the special class-room in the 4th year numbered, up to March 31, 35th year, 202 in the course of management, 1,857 in the course of technical department, and 83 in the special course, in all 2,142.

TRANSPORTATION.

CHAPTER I. Railways.

Official Organization—Legislative measures—Railway Lines—Rolling Stock—Capital-Volume of Traffic—Receipts and Disbursements.

I. OFFICIAL ORGANIZATION.

It was in November of the 2nd year of Meiji that the Government decided to start the work of railway construction, and caused the then existing Department of Civil Affairs and of Finance to conduct the business. In March of the following year the Department appointed railway officials, and these on the splitting up of this dual Department into two independent offices, were transferred to the Department of Civil Affairs. Again the control of railway matter passed into the hands of the Department of Public Works when this was created in October of the same year. The Department established a special Bureau to attend to this business, but the Department was abolished in December of the 18th year and the Railway Bureau was placed under the direct management of the Cabinet. In the 23rd year the Railway Bureau changed its name to Railway Board. At the same time it was affiliated to the Home Office. This connection with the Home Office came to an end in July of the 25th year when the Department of Communications was created, and naturally the Railway Board which had restored to it its old designation of Railway Bureau

in November of the 26th year, was brought under the control of the new Department. With the progress of the times railway affairs had grown so expanded in scope, that it was decided to divide the controlling office into two bureaux. This division was carried out in August of the 30th year. One bureau was made to attend to the work of supervision and the other bureau to traffic affairs. The new office was called the Railway Traffic and Construction Bureau, and this division of labor is still continued to this day.

Prior to this, in April of the 29th year a new Department of State for Colonial Affairs having been created, the railways in Hokkaidō were detached from the control of the Communication Department and were transferred to that of the new Department which established, to better manage the work of constructing Government lines in the northern island, the provisional Hokkaidō Government Railway Construction Office. In November of the 30th year, the office was abolished and was made to form part of the Hokkaidō Administration Office. The Department itself had already ceased to exist in September of the same year, and Hokkaidō railway business was again restored to the control of the the Department of Communications.

II. LEGISLATIVE MEASURES.

The first legislative measure relating to railways was published in February of the 5th year in the form of Notification No. 61 of the then Cabinet. The measure provided general rules about railway work. It was amended in May of the same year by No. 146 Notification of the Cabinet. At the same time, by No. 147 Notification Punitive Rules ralating to Railways were promulgated, these being amended in March of the following year. In September of that year Supplementary Rules relating to Conveyance of Goods on Railways and also the freight tariff were determined and made public. They partly revised in May of the following year. In January

of the 7th year it was proclaimed that in future any change of the tariff of railway passengers and goods would be determined at the discretion of the Department of Public Affairs. In pursuance of that announcement, notification No. 28 of the Department was issued in the November of that year and rules relating to luggage were enacted. Then in December of the 11th year Supplementary Rules relating to the Carriage of Goods and the freight tariff were revised. It was decided at that time that amendments of this nature would not be made public on every occasion that such amendments were effected, and when the amendments did not concern the general public. In March of the 12th year the Punitive Rules relating to Railways were revised, and coming to June of the following year the Supplementary Rules above mentioned were again amended, and then again in August of that year. It was also announced in October of the year that cases in the Punitive Rules in question that did come in collision with a provision in the Criminal Code would be dealt with in accordance with Art. 5 of the Code.

Notification No. 23 of the Cabinet issued in July of the 16th year enacted the General Rules relating to Railways and the Punitive Rules would apply correspondingly to private railways.

By Notification No. 47 of the Cabinet issued in December of the same year Regulations relating to Public Loan of the Nakasendo Railway were enacted. In August of the following year portion of the Supplementary Rules relating to the Carriage of Goods was revised. Rules relating to the Conveyance of Explosives on Railways and to the treatment thereof were made public in April of the 18th year in the form of Notification No. 14 of the Department of Public Works. The Regulations relating to the Finances of Railways were provided in May of that year. But a legislative measure of far greater importance was the promulgation in May of the 20th year of the Regulations of Private Railways issued in the form of Imperial Ordinance No. 12. Law No. 4 promulgated in June of the 25th year was even more important, as it was the Law of Railway

Construction elaborated for the purpose of prescribing the route along which Government railways were to be laid. Imperial Ordinance No. 51 enacted in that year elaborated the organization of the Railway Council. In May of the 29th year the Law relating to Railway Construction in Hokkaidō was issued in the shape of Law No. 93 in order to determine in advance the routes of construction in the island. Law No. 64 promulgated in March of the 33rd year embodied the Law of Private Railway, which superseded the Private Railways Regulations. At the same time the Law of Railway Traffic was enacted by Law No 65. Soon after, by means of Departmental Ordinances, various rules relating to the work of construction to signals, traffic and other matters were made public. This completed our railway legislation.

Below will be enumerated those points in the Law of Private Railways that deserve special notice:—

1. Shares of the capital must not be acquired except by the payment of money.
2. Unless in virtue of a decision arrived at by a general meeting of share-holders and with the sanction of the Minister concerned no railway can be chartered or hired or its management entrusted to others.
3. Unless with the sanction of the Minister concerned and after not less than one-fourth of the share capital has been paid up, a Railway company must not issue debenture bonds.
4. With the approval of the Minister, a company may contract a loan by mortgaging its railway with accessories, but they must not be used as object of right of mortgage.
5. The debenture bonds and loans together must not exceed the total sum of the paid-up capital.
6. No company must declare dividends unless after the principal and interest of the bonds and loans payable every year have been substracted from the proceeds.
7. Except in cases specially approved of the gauge must measure 3ft 6 inches.

8. The Minister concerned may order an alteration of tariff rate, when such alteration is judged necessary for the sake of public interest.
9. The tariff rate of third-class passenger must not exceed 2 *sen* per mile. (This may be increased to no more than 4 *sen* for a distance not exceeding 2 miles.)
10. A company shall be held responsible to offer its lines in accordance with the provisions determined by law or ordinance, for the use of the Army or the Navy either in time of war or in time of peace.
11. The Government reserve the right of purchasing the line with all its appurtenance after full 25 years from the granting of a permanent charter.

III. RAILWAY LINES.

The service which possessed lines extending altogether 4,026 miles on March 31st of the 35th year had at its inception in the 5th year only one short line, that is the Shimbashi-Yokohama line. It was the original idea of the Government to lay a trunk line from Tokyo to Kobe and Ōsaka and Kyoto. The Tokyo-Yokohama line and a line starting from the vicinity of Lake Biwa and terminating at Tsuruga were to form deflections. For the trunk line extending from Tokyo to Kyoto the programme originally adopted the Nakasendo route. But a result of the financil survey demonstrated that the route involved stupendous labor and expense, many steep hills and passes being present along it. Therefore that route was abandoned and the Tōkaidō route was adopted as a substitute. Consequently the Takasaki-Uyeda line that had been intended as part of the trunk line and the Uyeda-Naoyetsu line that had been selected to facilitate the conveyance of construction materials had to form combinedly an independent section known by the name of the Shinyetsu line.

The programme of construction as contemplated at first

consisted in the main in the shape as indicated above. In the 19th year, however, the construction of the Ofuna-Yokosuka section was decided upon, which coming to June of the 25th year the Law of Railway Construction was issued by Law No. 4 to determine the routes of construction. Further in May of the 29th year the Law of Railway Construction for Hokkaidō was promulgated by Law No. 93.

Construction are to be undertaken in principle by the State, but some provision for the modification of this general rule existed to meet applications made by any private railway company for permission to lay its own line along a route comprised in the Government programme but the construction of which was not yet taken in hand. But in allowing a private company to construct its own line along such a route the Government had to get the consent of the Diet, as is still the case. The official routes thus transferred to private enterprises are not few.

Of the routes included in the construction programme, those that required to be more speedily constructed than the others were singled out and were set apart to be called collectively the First Period Construction Programme. These lines, extended altogether over 1,900 miles approximately, and in their case the work of construction had to be completed in twelve years from the commencement. According to the inquiries carried out on March 31st of the 35th year, 919 miles out of that length that is about one half of the whole, had already been opened to traffic.

The lines left behind after selecting the First Period Programme form the so-called Second Period Programme extending altogether over 2,525 miles approximately. Of that mileage of 827 miles has already been given over to private companies with the approval of Diet. Of the 827 miles, 415 miles were already opened to service according to the reports sent in on March 31st of the 35th year.

The pioneer of private railway enterprise in Japan is the Nippon Railway Company which obtained in November of the 14th year a charter for laying the Tokyo-Aomori line. It was

a rather bold undertaking at that time, for the people had not yet possessed sufficient experience in the work while the length of the line, several hundred miles in all, necessitated the investment of quite a large amount of capital. Then there were no reliable data to form any reliable estimates on profit and loss, and the estimates made were purely conjectural. In view of all those circumstances the Government, in compliance with the request of the company, decided to guarrntee its profit within a certain limit and moreover extended every possible convenience tending to further the work. In June of the following year the company started the work on the Tokyo-Mayebashi line, and in the 16th year the Uyeno-Kumagaye section was opened to traffic. Thus the work was launched, and the period of private railway enterpsises was ushered in. Since then private railway work has made its appearance in quick succession, and side by side with the state railway work has contributed to promoting the activity of railway enterprises in Japan. Indeed the rise of private undertakings of this special sort has been remarkably active. This was especially the case in the two years of the 29th and 30th. At the end of the former year alone applications for provisional charters numbered 555. Naturally the mileage under traffic of private railways went on advancing, the mileage opened in the two years of the 30th and 31st years alone extending over 400 miles each. The following figures give the progress of railway work from the 5th year :—

Year. At the end.	Government. m. ch.	Private. m. ch.	Total. m. ch.
5th	18.00	—	18.00
10th	65.11	—	65.11
15th	170.66	—	170.66
20th	300.43	293.24	593.67
25th	550.49	1,320.28	1,870.77
26th	557.49	1,381.03	1,983.52
27th	580.69	1,537.35	2,118.24
28th	593.22	1,697.21	2,290.43
29th	631.62	1,875.29	2,507.11

Year. At the end.	Government. m. ch.	Private. m. ch.	Total. m. ch.
30th	661.65	2,287.05	2,948.70
31st	768.37	2,652.13	3,420.50
32nd	832.72	2,806.00	3,638.72
33rd	949.69	2,905.16	3,855.05
34th	1,059.48	2,966.48	4,026.16

To classify the mileage existing at the end of the 34th year according to the condition of management and possessorship, the mileage under the management of the Department of Communications headed the list with 905 miles, closely followed by the Nippon Railway Company with 857. Then came the Kyūshū Railway with 407, and the Sanyō Railway with 334.

The condition of railways being examined according to the length of lines, the following table is obtained :—

	Under 20 miles.	20-50 miles.	50-100 miles.	100-200 miles.	200-500 miles.	500 and above.	Total.
No. of establishments ...	13	19	3	2	3	2	42
Mileage (m. and ch.) ...	157.04	583.76	225.30	348.14	949.10	1,762.42	4,026.16
Percentage	3.9	14.5	5.6	8.6	23.6	43.8	100.

The foregoing table shows that the number of establishments is largest for lines measuring from 20 to 50 miles, the next largest being those measuring under 20 miles. As to mileage those establishments owning or managing over 500 miles contribute about one half of the total mileage under traffic.

The regulation gauge of Japanese railways is 3 feet 6 inches, but it is 2 feet 6 inches for light railways. According to the inquiries made on March 31st of the 35th year, the mileage under the regulation gauge totalled 3,962 miles 76 chains and that of the 2 ft. 6 inches gauge 63 miles 20 chains. Therefore the latter constituted only 1.6 per cent. out of the whole 100 under traffic.

The existing mileage under traffic is further classified according to the natural geographical divisions of the country, and also the ratio of mileage to population.

Natural division.	Area exclusive of outlaying islands (sq. miles).	Population.	Railway mileage (m. ch.)	Mileage per 100 sq. miles. (miles).	Mileage per 10,000 people. (miles).
Honshū	86,329	34,196,471	3,165. 2	3.67	0.74
Kyūshū	13,771	6,586,682	425. 4	3.07	0.52
Hokkaidō ...	30,123	1,003,751	360. 76	1.16	3.48
Shikoku	6,858	2,961,714	75. 14	1.08	0.20
Total ...	137,081	44,748,618	4,026. 16	2.75	0.72

IV. ROLLING STOCK.

It is natural that with the extension of traffic mileage and with the advance of the volume of traffic, amount of rolling stock should also increase. The number existing each year from inauguration of the railway service is given below :—

At the end. Year.	Locomotives.			Passenger Cars.			Wagons.		
	Gov.	Private.	Total.	Gov.	Private.	Total.	Gov.	Private.	Total.
5th	10		10	58		58	75		75
10th	38		38	160		160	320		320
15th	47		47	240		240	503		503
20th	53	30	83	313	138	451	887	364	1,251
25th	133	185	318	630	739	1,369	1,753	2,819	4,572
26th	142	211	353	647	806	1,453	1,851	3,365	5,316
27th	167	273	440	678	968	1,646	2,112	4 321	6,413
28th	171	351	522	705	1,238	1,943	2,235	5,156	7,391
29th	183	429	612	796	1,475	2,271	2,328	6,582	8,910
30th	258	636	894	871	2,029	2,900	2,930	8,541	11,471
31st	317	786	1,103	989	2,837	3,811	3,295	10,827	14,122
32nd	343	871	1,214	1,022	3,129	4,151	3,729	12,822	16,551
33rd	387	892	1,279	1,085	3,331	4,416	4,291	14,046	18,337
34th	407	943	1,350	1,122	3,407	4,529	5,112	14,708	19,820

The foregoing figures simply indicate the numbers of vehicles, and do not make any discrimination as to their relative capacity. This capacity naturally advancing with the progress of the railway business, the locomotives that have to draw them are consequently required to possess greater drawing power. Hence in drawing capacity a given number of vehicles as they existed formerly was much

less than same number of vehicles to-day. According to the latest inquiries the aggregate weight of 1,350 locomotives totals 59,001 tons, an average of 43.7 tons per one locomotive. Then 4,529 cars possess seating accommodations for 173,190 persons an average of 38.2 seats per one car; while 19,820 goods wagons possess the freight capacity of 134,137 tons, this being an average of 6.8 tons per one wagon.

The ratio of vehicles to mileage under traffic is, according to the latest inquiries, 33,5 locomotives, 112.5 passenger cars and 492.3 wagons per 100 miles.

V. CAPITAL.

The capital invested in the railway business is divided into two accounts, one on account of construction and the other on account of operation or working. The mode of computing the capital was somewhat different formerly compared to what it is at present. Thus prior to the 19th fiscal year the yearly disbursements were added up in the State railways to the account already existing. The principle of railway finance was first definitely arranged by the enactment in December of the 18th year of the Railway Finance Regulations. In accordance with the provisions of the regulations the *bona fide* investment was set apart out of the total disbursements made from the outset of the service, and the capital to be given below is therefore based on the result of that estimate.

The capital invested in railway work reached 460,768,544 *yen* according to the inquires made in the 34th year. Of that sum the State railways share amounted to 186,603,544 *yen* and that of private companies the remaining 274,165,000 *yen*. However, the preceeding figures do not represent the amount actually invested. They are only the nominal amount. The amount actually invested as calculated in the year mentioned above was as follows :—

	yen.
Government railways	127,167,852
Private railways	219,709,432
Total	346,877,284

The above sum distributed among the various accounts, the following table is obtained.

GOVERNMENT RAILWAYS.

Items.	*yen.*
Consolidated capital	122,924,591
Working capital	200,000
Stores funds	2,150,000
Others (Price of materials belonging to construction and improvement expenses)	1,893,261
Total	127,167,852

PRIVATE RAILWAYS.

Items.	*yen.*
Consolidated capital	207,402,792
Stores	5,262,527
Others (temporary construction disbursements, etc.)	7,044,113
Total	219,709,432

As to the sources from which the capital was derived, for the State railways the bulk consists of the proceeds of loans (the amendment of Railway Construction Law carried out by Laws Nos. 5 and 6 in February of the 35th year provides that the proceeds other than those of loans may be used on account of railway work) and a part of proceeds from traffic receipts. In the private railways the capital generally consists of share capital, though not unfrequently they procure funds by means of debenture bonds or ordinary loans. The capital of private railway companies distributed among the different items of sources, the following result is obtained:—

	yen.
By share capital	192,811,305
By debenture bonds	12,839,000
By loans	6,955,404
Others (as, for instance, transferred from receipt account).	7,103,723
Total	219,709,433

It will be seen from the above that the capital of Japanese private railway companies consists of share-capital to the extent of 88 per cent of whole sum, the rest supplied by debenture bonds or loans. The funds procured by bonds or loans constitute a temporary account and are temporarily made to take the place of instalment

of share-capital. This point presents a distinct feature in the railway finance of Japan as compared with that of Western countries. In the latter debenture bonds are regarded from the first as legitimate source of railway funds, but in Japan they are issued when the payment of the subscription is judged difficult or when there is no time to call in the share-capital by ordinary process. They are issued as a temporary expedient, and are therefore regarded as temporary resource.

The foregoing capital comprising all those accounts relating to lines not yet open to traffic, it is not possible to give an accurate comparison between the capital and traffic receipts and disbursements and similar matters. Therefore for the convenience of making this exact comparison, the cost of construction disbursed during the last eight years on account of traffic miles alone will be given below :—

Year. At the end.	Government.	Private.	Total.
27th	37,650,657	54,927,766	92,578,423
28th	39,279,435	66,109,351	105,388,786
29th	43,653,043	67,253,598	110,906,641
30th	46,317,417	105,298,041	151,615,458
31st	60,050,614	144,725,478	204,776,092
32nd	69,979,049	173,444,231	243,423,280
33rd	85,573,511	191,230,391	276,803,902
34th	100,590,209	202,804,045	303,394,254

The average cost of construction for the past few years' account as mentioned in the foregoing table amounts to 94,932 *yen* per one mile of State lines and 68,362 *yen* per one mile of private lines, the average of the two being 75,355 *yen*.

VI. VOLUME OF TRAFFIC.

Statistics relating to passenger and freight traffic requiring complicated inquiries, it is not possible to obtain reliable data for the years prior to the 22nd year. The only data available for those early years consist of the number of passengers and the tonnage of goods. They are however devoid of any great value for

investigating the exact state of railway traffic. For that purpose the data for demonstrating the extent of utilization of the service both by passengers and goods must be obtained. In other words the passenger mileage (calculating the mileage of travel by passengers) and goods ton mileage (calculating the mileage of the conveyance of goods) are necessary for giving accurate statistics on railway traffic business. Consequently the returns from the 23rd year which have been compiled on the principle explained will be given below :—

PASSENGER TRAFFIC.

Year. At the end.	Government.	Private.	Total.
23rd	11,265,383	11,575,247	22,840,630
25th	12,873,547	15,590,168	28,463,715
26th	14,444,327	18,090,836	32,535,163
27th	14,883,986	21,639,321	36,523,307
28th	18,764,387	30,451,191	49,215,578
29th	22,750,749	43,478,370	66,229,119
30th	27,922,577	57,175,600	85,098,177
31st	31,590,764	67,471,125	99,067,889
32nd	28,663,683	73,452,259	102,115,942
33rd	31,944,856	81 766,015	113,710,871
34th	32,074,254	79,136,954	111,211,208

PASSENGER MILEAGE.

Year. At the end.	Government.	Private.	Total.
23rd	284,831,381	185,469,252	470,300,633
25th	298,958,693	283,962,002	582,920,695
26th	341,637,335	314,135,567	655,762,902
27th	403,536,788	423,933,330	827,470,118
28th	523,044,579	552,554,089	1,075,598,668
29th	535,925,403	633,642,176	1,169,567,579
30th	623,335,927	839,118,735	1,462,454,662
31st	675,040,127	958,284,992	1,633,325,119
32nd	635,044,513	1,076,805,648	1,711,850,161
33rd	115,213,181	1,187,768,933	1,903,042,114
34th	725,605,652	1,173,647,725	1,899,253,377

PASSENGER RECEIPTS.

Year. At the end.	Government.	Private.	Total.
23rd	3,183,383	1,966,532	5,149,915
25th	3,335,609	3,122,946	6,458,555
26th	3,791,501	3,404,926	7,196,427
27th	4,229,005	4,326,804	8,555,809
28th	5,656,410	5,883,506	11,539,916
29th	5,984,581	7,242,495	13,227,076
30th	7,003,795	9,904,292	16,908,087
31st	7,722,425	11,929,364	19,651,789
32nd	9,291,050	14,126,326	23,417,376
33rd	10,441,171	16,100,291	26,541,492
34th	10,648,762	16,929,621	27,578,386

GOODS TRAFFIC.

Year. At the end.	Government.	Private.	Total.
23rd	671,561	1,088,645	1,760,206
25th	982,404	1,719,316	2,701,720
26th	1,076,689	2,414,394	3,491,083
27th	1,018,298	3,265,404	4,283,702
28th	1,100,059	4,231,353	5,331,412
29th	1,266,119	5,579,112	6,845,231
30th	1,558,194	7,070,315	8,628,509
31st	1,793,896	8,122,230	9,916,126
32nd	2 391,471	9,428,563	11,820,034
33rd	2,806,560	11,594,960	14,401,520
34th	2,659,602	11,750,150	14,409,752

GOODS-TON MILEAGE.

Year. At the end.	Government.	Private.	Total.
23rd	25,744,580	39,337,845	65,082,425
25th	44,827,316	92,017,807	136,845,123
26th	54,437,438	114,637,372	169,074,810
27th	72 334,004	161,025,073	233,359,077
28th	76,823,086	207,484,549	284,307,635
29th	74,334,819	238,766,349	313,101,168
30th	96,480,877	312,901,264	412,382,141
31st	133,132,239	346,041,975	479,174 214
32nd	177,318,088	422,152,648	599,470,736
33rd	223,654,688	508,844,910	732,498,698
34th	215,280,085	575,826,909	791,106,994

GOODS RECEIPTS.

Year. At the end.	Government.	Private.	Total.
23rd	778,798	998,742	1,777,540
25th	1,075,342	1,743,455	2,816,797
26th	1,243,350	2,166,556	3 409 906
27th	1,589,56	2,933,926	4,523,491
28th	1,808,489	3,838,127	5,646,616
29th	1,646,323	4,439,366	6,085,689
30th	2 064,776	6,055,547	8,120,263
31st	2,810,033	7.499 787	10,309,820
32nd	3,731,976	8,994,869	12,726,845
33rd	4,499,792	10,926 376	15,426,168
34th	4,404,917 *535,784	11,431,032 *1,199,167	15,835,949 *1.734,951

Note :—The figures marked with (*) indicate charges incidental to arrival and sending of goods.

As shown in the preceding table, though in the returns of latest years' traffic volume, in one or two items a slight decrease is noticed, on the whole the volume indicates a steady advance, showing how the railway service is contributing very much to the exploitation of industries and to their development. One cannot but regret, however, that the degree to which our people make use of this important factory of civilization and prosperity is still comparatively limited. The volume of passenger traffic for the last year given above compared with the population, the ratio per one person does not exceed only 2½ ridings and 42 miles of travel in a year. At the same time this comparatively imperfect utilization of railways by our people is not without a consoling side, in that it serves as a sign of future hopefulness of the business. The existing condition of railway traffic service lends powerful support to the reasonableness of this conjecture, for whereas in most other countries the volume of goods traffic and the receipts thereof surpasses those of passenger traffic, the former being the principal item of reveune and the latter subordinate to it—in Japan the relative position of the two is reversed, the volume and receipts of passenger traffic always exceeding those of the other. This state of railway traffic in Japan is entirely attributable to the fact that the progress of the country is not yet so perfect as in the West. Already signs are discernible

that our railway business will develop before long a normal feature as seen in the railway business of Europe and America, for as shown in the following figures the ratio of volume and revenue of goods-traffic to the volume and revenue of passenger traffic is steadily advancing. The arrival of that period will not only enable our railways to discharge their function with more efficiency than is the case at present, but will at the same time serve as a clear proof that our economic enterprises have reached a stage of real activity and prosperity. In short, any amount of room exists for the future development of our railway business.

RATIO OF FREIGHT RECEIPTS PER 100 *yen* OF PASSENGER RECEIPTS.

Year.		Year.	
23rd	34.5	29th	45.0
24th	39.5	30th	48.0
25th	43.6	31st	52.5
26th	47.4	32nd	54.3
27th	52.9	33rd	58.1
28th	48.9	34th	63.7

The average traffic mileage of passengers and goods and the average receipts per one mile are shown below, the increase of the average passengers fare being attributable to the advance of the rate carried out in view of the general advance of the market price of commodities.

Year.	Per one passenger.		Per one ton of goods.	
	Mileage.	Fare per one mile.	Mileage.	Freight per one mile.
	Mile.	*sen.*	Mile.	*sen.*
23rd	21	1.10	37	2.69
25th	20	1.11	51	2.06
26th	20	1.10	48	2.02
27th	23	1.03	54	1.94
28th	22	1.07	53	1.99
29th	18	1.13	46	1.94
30th	17	1.16	48	1.97
31st	16	1.20	48	2.15
32nd	17	1.37	51	2.12
33rd	17	1.39	51	2.11
34th	17	1.45	55	2.00

The average volume of traffic per one mile and per one day computed on the returns for the latest year mentioned in the table, the ratio for passenger amounts to 1,313 and that for goods 547 tons.

VII. TRAFFIC RECEIPTS AND DISBURSEMENTS.

According to the returns from the commencement of the service to the 34th fiscal year the receipts for the 6th year totalled about 441,000 *yen* as against the disbursements amountiug to over 232,000 *yen*, yielding a profit of over 208,00 *yen*. In the 9th year the receipts amounted to 1,284,060 *yen* and the disbursements to over 434,000 *yen*, leaving a net profit of over 850,000 *yen*. In the following year the receipts fell off while the disbursements increased, and the result was that the amount of net profit did not reach even one half of the profit in the preceding year. Coming to the 11th year the normal aspect was somewhat recovered, though the net profit did not exceed 456,000 *yen* in round numbers. Matters continued improving in the 12th to 14th years, the profit for the last-mentioned year amounting to over 1,030,000 *yen*. In the following year owing to traffic expense having gone up compared with the receipts, the net profit fell to about 910,000 *yen*. The opening of several private railways and the better facilities afforded to railway travelling resulted in more or less of an increase in the traffic receipts in the 16th year, but in the following three years that is from the 17th to the 19th, the record again sustained a slight fall, from which, however, it recovered once more in the 20th year. The profit was unusually great in the 21st year and in the following year, it having exceeded 2,470,000 *yen* in the former and 3,530,000 *yen* in the latter. From that time onward the receipts have steadily continued to advance, to 16,400,000 *yen* in the 28th year and to 24,960,000 *yen* in the 34th year, both being in round numbers.

Private railway companies are entitled to undertake at the same time warehousing, carriage, and the extraction of coal and other minerals. The receipts of this special kind are indicated by an asterisk in the following tables:—

EARNINGS.

(unit of *yen*.)

Year.	Government Railways.	Private Railway.	Total.
6th	441,615	—	441,615
10th	910,336	—	910,336
15th	1,840,394	—	1,840,394
20th	1,693,873	1,182,345	2,881,218
25th	4,580,632	5,096,631	9,677,266
26th	5,384,455	5,981,057	11,365,512
27th	5,819,413	7,803,008	13,622,421
28th	8,004,234	10,543,387	18,547,621
29th	8,273,652	12,373,775	20,915,814
30th	9,727,490	17,764,176	27,491,666
31st	11,143,742	21,413,932	32,557,674
32nd...	13,719,006	24,866,300	38,585,306
33rd	15,920,385	29,014,009	44,934,394
34th	16,764,219	31,640,328	48,404,547

EXPENSES.

6th	232,830	—	232,830
10th	526,248	—	526,248
15th	926,548	—	926,548
20th	677,124	392,542	1,069,666
25th	2,166,199	2,437,138	4,603,337
26th	1,942,375	2,512,149	4,454,524
27th	2,181,696	3,155,459	5,337,155
28th	2,951,561	4,195,234	7,146,795
29th	3,815,663	5,237,426	9,053,089
30th	4,786,049	7,578,047	12,364,096
31st	6,343,030	11,422,514	17,765,544
32nd...	6,596,677	12,236,540	18,833,217
33rd	7,101,108	13,622,156	20,723,264
34th	8,346,091	15,093,086	23,439,177

NET EARNINGS.

Year.	Government Railways.	Private Railway.	Total.
6th	208,785	—	208,785
10th	384,088	—	384,088
15th	913,846	—	913,836
20th	1,021,749	789,803	1,811,552
25th	2,414,433	2,659,496	5,073,929
26th	3,442,080	3,468,908	6,910,988
27th	3,637,717	4,647,549	8,285,266
28th	5,052,673	6,348,153	11,400,826
29th	4,457,989	7,404,736	11,862,725
30th	4,941,441	10,186,129	15,127,570
31st	4,800,712	9,991,418	14,792,130
32nd	7,122,329	12,629,760	19,752,089
33rd	8,819,277	15,391,853	24,211,130
		* 953,897	* 953,897
34th	8,418,128	16,547,242	24,965,370
		*1,094,453	*1,094,453

With this marked advance of traffic receipts and profit the traffic mileage has also made an equally marked extension. The traffic earnings and expenses as well as the net earnings per one mile are given in the following table :—

GOVERNMENT RAILWAYS.

(unit of *yen*).

	Earnings.	Expenses.	Net Earnings.
6th	24,534	12,935	11,599
10th	13,975	8,075	5,896
15th	17,892	9,008	8,884
20th	7,209	2,873	4,336
25th	8,319	3,934	4,385
26th	9,656	3,483	6,173
27th	10,294	3,859	6,435
28th	13,651	5,034	8,617
29th	13,537	6,243	7,294
30th	15,020	7,390	7,630
31st	15,391	8,761	6,630
32nd	16,795	8,076	8,719
33rd	17,776	7,929	9,847
34th	16,438	8,184	8,254

PRIVATE RAILWAYS.

	Earnings.	Expenses.	Net Earnings.
16th	6,355	2,419	3,936
20th	4,964	1,648	3,316
25th	4,082	1,952	2,130
26th	4,468	1,876	2,592
27th	5,354	2,165	3,189
28th	6,520	2,594	3,926
29th	7,453	3,088	4,365
30th	8,764	3,739	5,025
31st	8,684	4,632	4,052
32nd	9,124	4,490	4,634
33rd	10,214	4,796	5,418
34th	10,748	5,127	5,621

GOVERNMENT AND PRIVATE RAILWAYS.

16th	11,387	4,550	6,837
20th	6,081	2,258	3,823
25th	5,378	2,558	2,820
26th	5,994	2,349	3,645
27th	6,735	2,639	4,096
28th	8,418	3,233	5,174
26th	9,065	3,923	5,142
30th	10,279	4,623	5,656
31st	10,206	5,569	4,637
32nd	10,893	5,317	5,579
33rd	12,026	5,546	6,480
34th	12,212	5,913	6,299

Receipts accruing from railways traffic are classified into three main headings, namely, passenger car receipts, wagon receipts, and miscellaneous receipts; then traffic expenses are divided into four classes, maintenance expense, locomotive expense, transportation expense and general expense. These different items were as follows in the 34th year:—

TRAFFIC RECEIPTS.

Items.	*yen.*	per centage.
Passenger car receipts	28,975,755	59.9
Wagon receipts	17,768,164	36.7
Miscellaneous receipts	1,660,628	3.4
Total...	48,404,547	100.0

TRAFFIC EXPENSES.

Maintenance expense	5,066,674	21.6
Locomotive expense	9,868,668	42.1
Transportation expense	5,876,120	25.1
General expense (including taxes).	2,627,715	11.2
Total...	23,439,177	100.0

In comparing, on the basis of the same year's returns, the ratio which traffic receipts bear to cost of construction of lines under traffic, it is found that it amounts to 8.4 per cent for the State lines and 8.2 for the private lines, the average being 8.3 per cent.

CHAPTER II.—Ships and Shipping Business.

Ships—Shipbuilding—Sailors—Life-boat business—Protection of Navigation—Nautical signals—Open ports.

I. SHIPS.

Ships as originally existed in Japan were those known by the name of junks. In construction and size they were utterly unsuited for ocean service. The adoption of the polity of enlightened progress by the Meiji Government naturally led to the encouragement of marine navigation and therefore to the building of ships of foreign pattern. Special protection was extended to carrying trade and money and efforts were not spared for encouraging the business. The people too eagerly responded to the call of the Government and impelled by the new circumstances, they betook themselves energetically to this special line of maritime enterprises. The result was that the list of foreign-patterned ships steadily went on increasing in number. In reviewing the history of our carrying trade during these last thirty four or five years it is found that the number and tonnage of steamers steadily increased up to the end of the 26th year. The Japan-China war of the 27th—28th years served as an occasion of introducing epoch-making change in the condition of carrying trade, for so remarkable has been its progress since that time and so many were the steamers that were added to the list, that at the end of the 34th year they numbered altogether 1,395 with an aggregate tonnage of 583,532 tons. Compared with the list at the end of the 26th year the number increased twofold and the freight capacity threefold. The case was somewhat different with sailing ships, for though they continued to increase both in number and tonnage up to the 21st year, they began to fall off after that year, this downward moment reaching the climax in the 29th year. At the end of that year the ships of this class numbered 644 representing 44,055 tons altogether. After the 31st year, however, another

change came over this branch of shipping activity. At the end of that year the aggregate increased at one jump to three times as much as it was in the preceding year. This tendency continued in the succeeding years, so that at the end of the 34th year the ships of this type numbered 4,020 with no less than 336,436 tons altogether. This remarkable increase both in the number of vessels and in their tonnage is to be sought in the fact that, in consequence of the amendment of the Ship Inspection Law, the *koku* system of computing the capacity that had previously been adopted for quite a large number of ships was superseded by the ordinary method of computation by tonnage. Naturally it resulted in a large increase in the gross tonnage. The increase of steamers has also had a stimulating influence on the construction of ships of this particular type.

The principle of the survival of the fittest has driven the indigenous junks to the wall, for not only are they not up to the requirements of modern navigation, but the Government has decided to restrict the building of ships of this type. Below is given a table showing the number and tonnage of ships from the 3rd year, and especially during the last ten years:—

Year.	Steamers.		Sailing ships.		Junks (over 50 *koku*).	
End of.	No.	Tonnage.	No.	Tonnage.	No.	*Koku* tonnage.
3rd... ...	35	15,498	11	2,454	?	?
5th... ...	96	23,364	35	8,320	18,640	3,312,281
10th... ...	183	49,105	75	13,648	18,964	3,251,425
15th... ...	344	42,199	428	48,985	17,331	2,930,842
20th... ...	486	115,365	798	64,416	17,194	2,851,247
25th... ...	642	165,764	780	49,085	18,205	3,069,816
26th... ...	680	176,915	749	48,303	17,209	2,878,462
27th... ...	745	273,419	722	46,959	17,300	2,876,131
28th... ...	827	341,369	702	44,794	17,360	2,960,887
29th... ...	899	373,588	644	44,055	17,612	3,066,128
30th... ...	1,032	438,779	715	48,130	19,097	3,320,284
31st	1,130	477,430	1,914	170,894	19,099	3,049,035
32nd... ...	1,221	510,007	3,322	286,923	18,479	2,713,646
33rd... ...	1,329	543,365	3,850	320,571	18,796	2,785,114
34th... ...	1,395	583,532	4,020	336,436	19,758	2,921,565

Note:—The tonnage as given in the table was the registered tonnage before the 17th year inclusive, after which the gross tonnage computation has been used. The *koku* used for indicating the freight capacity of Japanese junks amounts to one-tenth of a gross ton.

It should be noted here that Japanese ships and boats are divided, according to the provisions of the Law of Ships, into two main classes, that is those which require shipping certificates and and those which do not require such certificates. (Art. 20 of the Law of Ships provides that ships below 20 gross tonnage or the *koku* freight capacity not exceeding 200 *koku*, lighters or boats worked by the use of oars alone need not require shipping certificates). The ships requiring the certificate are called "registered ships" and those not requiring it "unregistered ships." It is hardly necessary to add that the ships of the registered class form the mainstay of the maritime trade, and those of the unregistered type are accessories to them. Hence it is sufficient to give here a statement about the registered class ships alone. Before doing so a brief remark will be made on the relative number, kind, etc. of registered and unregistered ships during the last ten years :—

At the end of.	Registered ships.			Unregistered ships.		
Year.	Steamers.	"Tonnage" sailing ships.	"*koku*" sailing ships.	Steamers.	"Tonnage" sailing ships.	"*koku*" sailing ships.
25th	375	239	—	267	541	18,209
26th	400	218	—	280	531	17,209
27th	461	196	—	284	526	17,300
28th	528	173	—	299	529	17,360
29th	570	165	—	329	479	17,612
30th	626	171	—	406	544	19,097
31st	674	1,310	—	456	604	19,099
32nd	753	2,783	222	468	539	18,257
33rd	859	3 309	911	470	541	17,885
34th	969	3,565	1,355	426	455	18,403

The average carrying capacity of ships flying Japanese flag increases or decreases with the progress of times and according to kind, for though the carrying capacity should enlarge with the extension of scope of navigation, the progress of trade or of shipbuilding business, this remark can apply only to ships of one and the same class, placed under the same circumstance. But the ships differing in construction or kind, or differing in the nature of service cannot make any uniform progress in their average carrying trade. In making further inquiries, the average carrying capacity of steamers of registered class that was 427 tons in the 20 year and

419 in the 25th, jumped at one bound to 572 in the 27th year. The average recorded after the 28th year was even as high as 689 tons. This extraordinary increase of the average tonnage was chiefly attributable to the purchase of many large steamers on the occasion of the Japan-China war and also after it. The average of "tonnage" sailing ships was 135 tons in the 20th year, 143 in the 25th year, 160 in the 30th. Coming to the 34th year it fell down to only 92 tons.

The number of registered ships classified according to size, the bulk for "tonnage" sailing ships consisted during the last ten years of those ranging from 20 to 100 tons; those of 100 500 tons followed next, while only a small number were of over 500 tons. This progressive diminution of number with an increase of carriage capacity is also seen in steamers, for those of over 5,000 tons did not exceed one-fiftieth of the whole number even at the time when big steamers reached the highest record. The following table showing the comparative statement of rsgistered tonnage, etc. will further explain this point:—

STEAMERS.

Year. At the end of.	20—100 tons.	100—1000 tons.	1000—5000 tons.	Over 5000 tons.	Total.
25th	112	212	51	—	375
26th	119	225	56	—	400
27th	132	242	76	1	461
28th	148	266	113	1	528
29th	157	287	125	1	570
30th	175	311	132	8	626
31st	202	328	130	14	674
32nd	262	343	132	16	753
33rd	349	351	142	17	859
34th	427	372	150	20	969

"TONNAGE" SAILING SHIPS.

	20—100 tons.	100—500 tons.	Over 500 tons.	Total.
25th	130	103	6	239
26th	108	102	8	218
27th	85	104	7	196
28th	68	98	7	173
29th	67	91	7	165
30th	69	95	7	171

	20—100 tons.	100—500 tons.	Over 500 tons.	Total.
31st	635	668	7	1,310
32nd	1,752	1,025	6	2,783
33rd	2,201	1,104	4	3,309
34th	2,362	2,201	2	4,565

To classify the registered ships according to their type and the material used in their construction of the frame-work, steamers was generally built of wood at first. With the expansion of the service and the increase of carrying capacity, iron or steel-framed steamers have increased in number. Then in the relative number of iron-frame or steel-frame steamers, the latter was at first very small, not exceeding one-sixth of the whole in the 25th year. The ratio gradually advanced till the relative position was reversed after the 33rd year. At the end of the 34th year steel-frame steamers constituted 16 per cent, the iron-frame steamers 14 per cent, and the iron-wood composite steamers 1 per cent, in the whole number of registered steamers. The state of things was entirely different with registered sailing-ships. Prior to the 30th year there was only one iron-framed vessel and between the 31st to the 33rd year one steel-framed vessel, the rest having wooden-frames. The following table gives the relative number of ships built during the last ten years, and classified according to the nature of the material of which they were built :—

STEAMERS.

Year. At the end of	Steel or steel-iron.	Iron.	Iron-wood.	Wood.	Total.
25th	14	87	13	261	375
26th	18	91	12	279	400
27th	35	112	11	303	461
28th	46	131	11	340	528
29th	60	138	11	361	570
30th	81	136	12	397	626
31st	94	125	12	443	674
32nd	116	123	13	501	753
33rd	136	130	13	580	859
34th	154	135	13	667	969

"TONNAGE" SAILING SHIPS.

	Steel or iron.	Wood.	Total.
25th	1	238	239
26th	1	217	218
27th	1	195	196
28th	1	172	173
29th	1	164	165
30th	1	170	171
31st	1	1,309	1,310
32nd	1	2,782	2,783
33rd	1	3,308	3,309
34th	—	3,565	3,565

To classfy the number of registered ships as to age, at the end of the 34th year the ships (steamers and sailing ships combined) that were five to ten years old numbered most, followed by those under five years, while those above ten years gradually dwindled in number with their increase in age. For the registered steamers the order of the relative superiority of number was as follows as to age: 5 to 10 years, under 5 years, 10 to 15 years, 15 to 20 years, 20 to 25 years. The foregoing classification also holds good for "tonnage" sailing ships. However the condition differed slightly for "koku tonnage" sailing ships for in this case the number of ships less than 5 years old was less than that of those 10 to 15 years old.

According to the existing laws and ordinances bearing on navigation and ships there are four kind of service, these being ocean service, territorial sea service, coasting-service, and inland-water service. The same legislative measures provide strict regulations about the kind, tonnage, construction, etc., and only those that are judged seaworthy are permitted to run on the service.

The registered ships classified according to the different kinds of service were distributed as follows at the end of the 34th year.

OCEAN-GOING SERVICE:—85 steamers with 274,999 gross tonnage, 4 "tonnage" sailing ships with 512 gross tonnage.

TERRITORIAL SEA SERVICE :—248 steamers with 214,807 gross tonnage ; 3,312 "tonnage" sailing ships with 308,964 gross tonnage, 1,097 "*koku* tonnage" sailing ships with 528,644 *koku*.

COASTING SERVICE :—320 steamers with 44,534 gross tonnage.

INLAND-WATER SERVICE :—286 steamers with 31,512 gross tonnage.

Besides, there were in the same year other ships which could not be included in the above list owing to the fact that they had not yet undergone fresh examination after the term of the certificate they obtained before had expired, or that they had not yet received the certificate even when they underwent the examination. Among the ships of this extra class there were 30 steamers with 11,343 gross tonnage, 249 "tonnage" sailing ships with 15,519 gross tonnage, 258 "*koku*" sailing ships with 81,583 *koku*.

II. SHIPBUILDING.

IT goes without saying that the carrying trade being inseparably connected with shipbuilding work, the expansion of the one depends upon the activity of the other. As might naturally be expected, the shipbuilding work of Japan that had formerly been confined to the building of Japanese junks alone underwent, with the advent of the new order of things, a radical change in the nature of its work and began to include the building of foreign-shaped ships. The Government and people zealously attended to the work of developing the industry in this modified form. However, with only imperfect experience to assist them and with insufficient materials at their disposal, the industry could not of course make any great advance in a short space of time, and therefore could not satisfy the demand that had sprung up at home. Japanese shipbuilders, laboring as they did under such disadvantages, could build only sailing ships and small steamers, so that

Japan had to depend on foreign shipyards for the construction of any large steamers she required. Steadily and gradually our builders acquired greater experience and knowledge, and the industry, encouraged by the putting in operation in October of the 29th year of the Law for Encouraging Shipbuilding, has began with energy to make a new departure. Only a few years have elapsed since that time, and already our shipbuilders have succeeded in building large steamers well qualified to be placed on a foreign service. They have even built some steamers to the order of foreign countries. One serious defect however, still, remained unremoved in our shipbuilding industry. That is our inability to get a supply of the necessary materials at home. It is satisfactory, however, to think that the steel-making industry has been started here and there that there is great hope of our shipbuilders being supplied before long with home-made materials which they must now order abroad. When that time has arrived a new epoch will dawn on the shipbuilding industry of Japan.

Though the supply of ships of large displacement, can to-day be satisfied at home, Japan is still more or less dependent in this matter on foreign countries. The relative proportion of foreign-built ships and home-duilt ships in Japan is shown with greater accuracy by the following statement :—

Year.	Home built.				Purchased abroad.			
	Steamers.		Sailing ships.		Steamers.		Sailing ships.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
3rd—5th ...	13	250	1	50	71	17,179	34	8,660
6th—10th ...	43	1,178	32	2,448	77	34,826	29	6,987
11th—15th ...	149	8,899	431	39,568	18	2,946	47	13,486
16th—20th ...	95	8,846	113	10,718	32	24,849	9	2,376
21st—25th ...	147	23,172	63	5,357	40	42,124	1	440
26th	26	3,967	4	459	10	13,036	2	1,778
27th	33	5,847	10	1,311	38	96,072	—	—
28th	47	8,977	6	951	35	69,424	2	572
29th	36	5,860	11	1,061	27	34,891	—	—
30th	57	10,698	18	2,472	22	67,454	—	—
31st	54	13 929	202	20,836	10	44,110	1	114
32nd	53	18,157	216	20 342	9	25,474	1	83
33rd	53	15,308	193	17,873	13	28,492	2	235
34th	71	31,829	202	20,259	12	19,344	1	113

Note :—The tonnage consisted of registered tonnage prior to the 22nd year, after which year the gross tonnage has been adopted.

The foregoing table demonstrates that in the matter of building sailing-ships, the industry began to show great activity from about the 9th year. After the 16th year the sailing-ships purchased abroad numbered only one or at most two every year. At present Japan builds all the sailing ships she wants. On the other hand, though the number of foreign-built steamers fell below that of the home-built ones after the 9th year in respect to tonnage this superiority of home-built ships occurred only in the 11th—16th years, the tonnage of foreign-built steamers generally surpassing that of the other in most other years. This relative superiority of the tonnage of foreign-built steamers was owing to the fact that the art of ship building had not yet advanced sufficiently at that time in Japan to allow of her undertaking the building of ships of large displacement. The relative average tonnage of the two classes of steamers will make this point still more clear :—

Year.	Home-built steamers.		Foreign-built steamers.	
	Number.	Average tonnage.	Number.	Average tonnage.
3rd—5th	19	50	242	255
6th—10th	274	77	452	241
11th—15th	60	92	164	287
16th—20th	93	95	777	264
21st—25th	158	85	1,053	440
26th—30th	178	138	2,105	588
31st—34th	300	98	2,669	109

In order to explain the latest condition of our shipbuilding industry, the displacement and construction of newly built ships at home during the last four years will be shown in the following table :—

TONNAGE OF REGISTERED SHIPS BUILT AT HOME.

Year.	Steamers.					Sailing ships.			
At the end of.	20–100.	100–1000.	1000–5000.	Over 5000.	Total.	20–100.	100–500.	Over 500.	Total.
31st	198	278	2	1	479	635	662	4	1,310
32nd	258	290	4	2	554	1,750	1,018	3	2,771
33th	342	300	9	2	653	2,201	1,098	3	3,302
34th	417	318	15	4	754	2,362	1,196	1	3,559

CONSTRUCTION OF REGISTERED SHIPS BUILT AT HOME.

Year. At the end of.	Steamers.					Sailing ships.		
	Steel or steel-iron.	Iron.	Iron-wood.	Wood.	Total.	Steel or Iron.	Wood.	Total.
31st	22	16	4	437	479	1	1,300	1,301
32nd	37	16	5	496	554	1	2,770	2,771
33rd	56	18	6	573	653	1	3,301	3,302
34th	70	22	6	656	754	—	3,559	3,559

Sailing ships being now almost wholly made at home, the relation of home-built sailing shps and foreign-built sailing ships as to tonnage and construction is practically identical with that explained at some length in the first chapter concerning the general condition of sailing-ships in Japan. As to steamers, the smaller vessels not exceeding 100 tons were most in number, being followed by those ranging from 100 to 1,000 tons, steamers above 1,000 tons being comparatively scarce. In regard to construction the majority of the vessels were of wood, followed by steel-framed and iron-framed vessels, and lastly by wood-iron composite vessels. Comparing the foregoing particulars with the details as specified in the first chapter, it can be seen that while vessels under 1,000 tons displacement were mostly built at home those of large displacement came from foreign dockyards. Then in construction the wooden vessels were in most cases built at home, steel and wood-iron composite vessels being built at home and foreign dockyards in nearly equally proportion. But in regard to iron-framed vessels the share contributed by home shipyards was very small.

Our shipbuilding yards have considerably been increased in number. At the end of the 25th year they numbered only 60, and the number grew to 106 six years later, and then to 167 at the end of the 34th year.

A few words should be said concerning the Law of Encouraging Shipbuilding which, as mentioned above, was put in force from October of the 29th year. The encouragement bestowed by this law is in the form of bounties granted to ships built according to the rules prescribed by that law. They must also be built at the ship-

yards possessing the qualifications determined by this law. The bounty is 12 *yen* per ton of the body of the ship for steamer of not more than 700 and that less than 1,000 gross tonnage. The rate is 20 *yen* for one exceeding 1,000 tons. Further, the additional bounty at the rate of 5 *yen* per one horse-power is granted on the engine.

The steamers built or in course of building at our shipyards since the enforcement of the law in question number 35 with an aggregate gross tonnage amounting to about 70,029.

III. CREW.

OFFICERS:—The first legislative measure ever issued by the Government was that relating to the license examination of captains, mates and engineers for foreign-shaped ships. It was promulgated in June of the 9th year. The measure provided that unless possessing the licenses granted in accordance with the provisions contained in it no person could become captain or mate or engineer for a foreign-style ship of not less than 100 registered tonnage and 50 effective horse-powers. The measure has more than once been subjected to amendment until it finally assumed its present form. The existing law was issued in the 29th year in the form of Law No. 68. The ship's officers comprise, according to the law, captains, first and second mates, chief and first engineers, all of whom are required to possess the proper license to be qualified for their respective services. No discrimination with regard to nationality is enforced with regard to this qualification, and those who are legally qualified according to the Japanese law are permitted, no matter what nationality they belong to, to be officers of ships flying the Japanese flag. Appended is a statement giving particulars of the increases in the number of the licensed officers and of the relative number of Japanese and foreign officers from the 15th to the 20th year and also during the last ten years.

LICENSED OFFICERS.

At the end of.		1st class. Captains.	1st class. Mates.	2nd class. Captains.	2nd class. Mates.	2nd class Captains and Mates.	Chief Engineers.	Engineers.	Total.
15th	Japanese.	33	137	323	790	—	11	607	1,901
	Foreigners.	107	77	2	22	—	72	45	325
20th	Japanese.	74	243	359	1,247	—	29	785	2,737
	Foreigners.	189	110	2	21	—	135	75	532
25th	Japanese.	176	339	415	1,533	—	74	1,267	3,804
	Foreigners.	256	143	2	21	—	172	124	718
26th	Japanese.	190	360	428	1,541	—	83	1,294	3,896
	Foreigners.	263	142	2	20	—	174	126	727
27th	Japanese.	198	367	434	1,547	—	91	1,341	3,978
	Foreigners.	286	156	2	20	—	184	139	788
28th	Japanese.	227	380	432	1,559	—	125	1,412	4,135
	Foreigners.	308	169	2	20	—	196	146	839
29th	Japanese.	282	384	448	1,618	—	165	1,581	4,477
	Foreigners.	328	184	2	20	—	203	150	887
30th	Japanese.	346	373	480	2,496	1,199	228	1,922	7,044
	Foreigners.	362	188	2	21	—	212	153	938
31st	Japanese.	339	303	305	1,969	8,202	252	1,826	13,196
	Foreigners.	141	38	—	1	—	67	29	276
32nd	Japanese.	351	323	311	2,047	8,632	259	2,013	13,936
	Foreigners.	145	48	—	1	1	73	34	302
33rd	Japanese.	366	364	325	2,099	8,976	275	2,153	14,558
	Foreigners.	149	51	—	1	1	75	34	311
34th	Japanese.	396	445	335	2,179	9,340	299	2,395	15,389
	Foreigners.	155	51	—	1	1	75	36	319

The foregoing table shows that the number of Japanese officers of all classes and grades is steadily advancing. This was also the case with foreign officers prior to the 31st year, but since then, as a result of legislative changes, their number has gone down quite suddenly. To carry the comparison still further, the management of craft of larger displacement had at first, owing to the peculiar circumstances of the case, to be left in charge of foreign officers, so that Japanese officers had to content themselves with being captains and engineers of ships of smaller displacement. As the system of marine education has since then become more and more perfect and as the number of Japanese trained under that system has increased, there are at the present time many Japanese sea-men as well qualified to manage first class steamers as foreigners.

Training of officers and men and their relief:—The organs now existing for the purpose of training officers and men and of according them relief are the Nautical School conducted under the direct supervision of the Government, Merchant Navigation Schools of a briefer course established under the Technical Education Law, and lastly the Sailors Home.

The Nautical School originated in the Mitsubishi Merchant Navigation School established in the 8th year by the Mitsubishi Firm in accordance with the instruction of the Government. It was converted in April of the 15th year into a Government institution. In April of the 22nd year and in May of the 24th branch schools were established one at Ōsaka and one at Hakodate. They were however closed in March of the 34th year, as private institutions capable of taking their place had been opened in various parts of the country. The Nautical School trains boys who are to become officers of the heighest grade both in the art of navigation and in that of engineering. The graduates are enrolled in the Naval Reserve list, and hence subject to observe the rules enforced in the Naval service.

The Sailors Home was established in August of the 13th year for the purpose of training officers and sailors and also for according protection to them and their families. The Home has been receiving a State Subsidy of 10,000 *yen* since the 29th year.

Pilots:—Rules relating to pilots and pilotage were first enacted in December of the 9th year, the rules applicable only to ships of foreign pattern. In consequence of that enactment only properly qualified persons were permitted, as is also the case at present, to discharge the duty of pilots. The existing Pilotage Law that was promulgated in the 32nd year by Law No. 63 provides that no person not qualified according to the law, may act as a pilot in the pilotage roads; that the pilots must be Japanese subjects who have passed the prescribed examination and whose names appear in the official pilotage list.

Formerly the pilotage license was granted to people of all

nationalities, provided they were qualified according to the Japanese law, but as mentioned above the restriction as to nationality was enforced by the new Pilotage Law, with this reservation, however, that within the limit of five years from the enforcement of that law the Minister of State concerned is entitled to grant the license to properly qualified foreigners. Consequently the pilotage list contains quite a large number of foreigners. The appended statement will make this point clear :—

PILOTAGE LIST.

Year. At the end of.	Japanese.	Foreigners.	Total.
11th	1	18	19
15th	5	15	20
20th	4	12	16
25th	6	17	23
26th	7	17	24
27th	8	14	22
28th	9	18	27
29th	9	19	28
30th	8	18	26
31st	6	18	24
32nd	5	18	23
33rd	5	17	22
34th	7	19	26

IV. LIFE-BOAT PROVISIONS.

The existing legal provisions are in the shape of Life-boat Law issued in the 32nd year by Law No. 95. The law provides that life-boat matters are dealt with by mayors of municipal or headmen of rural, corporations, and they are entitled, in carrying out the rescue business, to requision the service of men and ships, wagons, horses and other necessary matters. The mayors and headmen have to deal with salvage and to settle expenses incidental to the rescue, and they are also

under obligation to furnish a rescue report to the captain when the latter makes a request to have it. However when the attempt of rescue fails the expenses required have to be defrayed out of the State Treasury. The Life-boat Law also contains provisions to flotsam and jetsam.

The Japan Life-boat Association was established in November of the 22nd year. At first it possessed only two rescue stations, one at Yojima and the other at Tadotsu, both in the province of Sanuki. With the expansion of the scope of the work, and especially since that the State decided in the 30th year to grant 20,000 *yen* every year, the number of main stations has been increased to 21 with 17 branches and 6 life-boat associations.

V. PROTECTION OF NAVIGATION.

General Remarks :—That the prosperity of Japan is inseparably connected with the prosperity of her carrying trade is a foregone conclusion, for surrounding all around by the sea Japan has to depend upon the watery highway not only in the intercourse with foreign countries but even in that carried on between one part and another of her dominion. It is a thing of vital importance, therefore, in the national polity of Japan to encourage carrying trade, and especially to maintain an active and efficient ocean service. This policy has been faithfully adhered to by the Government since the 3rd year.

Two different systems of protection are adopted in this connection, one being special protection accorded to special service and therefore limited to special kind of shippers while the other is general protection and therefore accessible to all shippers who fulfill certain prescribed conditions. The two systems being therefore distinct in nature and possessing distinct history had better be described under separate headings.

Special protection :—The protection given for the first time to our shippers was more than special ; it was not merely to help their business, it was really to support their very

existence. It was with this end in view that in the 3rd year the Government caused the Reiganjima Navigation Company to run with two steamers a monthly service between Tokyo and Ōsaka. When two years later that company was wound up, and the Japan Mail Steamship Company was created, the Government sold to the new company the steamers it had in its possession and made them to carry on regular coasting services. After three years this company ceased to exist, but its disappearance did not much affect the prosperity of the maritime business of Japan, for by that time the Mitsubishi Steamship Company had been in existence for some years. This company was the next recipient of the Government protection, and had a number of steamers belonging to the Government sold to it in easy terms. The carrying trade of Japan made at the same time a noteworthy departure, for its scope of operation was extended to Shanghai to which a regular service was established. Both on this and also on the regular coasting service the Government granted a certain amount of subsidy. When in the 15th year the Kyodo Unyu Kaisha (Union Steamship Company) was established the Government protected its business, on condition that the company would run certain regular service. The amalgamation of the Union Steamship Company and the Mitsubishi Steamship Company in the 18th year and the establishment, as result of this amalgamation, the present Nippon Yusen Kaisha was an occasion of altering somewhat the mode of giving protection. The new mode consisted in guaranteeing the profit of the company and this was agreed to for fifteen years from the date of the creation of the company. The guaranteeing of the profit was to be limited within a certain fixed rate of dividend to the paid-up capital of the company. In return for this protection the company was made to open various new regular services, both domestic and foreign. In the 20th year the guaranteeing of profit was altered into granting a certain fixed amount of subsidy. In following year another steamship company, the Ōsaka Shosen Kaisha, was granted a subsidy for eight years for consideration of running regular services on prescribed routes. The subsidy

to the two companies ceased with the expiration of the respective contracts, so that this special form of protection is no longer in vogue.

With the discontinuation of this system of protecting certain shippers another and more comprehensive method of encouraging foreign services and of protecting them has been adopted. In pursuance of that policy, protection was granted in the 29th year on the Yokohama-Adelaide service: in the 31st year on the Shanghai-Hankow, Shanghai-Suchow, and Shanghai-Hangchow services; in the 32nd year on the Hankow-Ichang services. Those services were somewhat altered soon after, while at the same time several subsidized lines were newly established. The subsidized lines now run by Japanese shippers in accordance with the order of the Minister of Communications are as follows:—

Yokohama-Melbourne service.
Yokohama-Bombay service.
European service.
Hongkong-Seattle service.
Yokohama-Shanghai service.
Kobe-North China service.
Kobe-Korea-North China service.
Kobe-Vladivostock service.
Kobe-Otaru service.
Aomori-Muroran service.
Hongkong-San Francisco service.
Shanghai-Hankow service.
Hankow-Ichang service.
Kobe-Korea service.
Shanghai-Suchow service.
Shanghai-Hangchow service.
Suchow-Hangchow service.
Japan Sea service.

Besides, there are other subsidized lines of local importance, these being undertaken under help from the Formosan Government, Hokkaidō Government and Prefectual Governments, as follows:—

Subsidized by the Formosan Government :—Tamsui-Tokosu service, Kelung-Kobe service (two), Takao-Yokohama service, Kelung-coasting service, Tamsui-Hongkong service, Amping-Hongkong service, Fuchow-Hongkong service, Fuchow-San-tu-ugao service, Fuchow-Hing-hwa service, Amoy-Shi-ma service.

Subsidized by the Hokkaidō Government :—Nemuro-Hakodate service, Nemuro-Shana service, Nemuro-Abashiri service, Otaru-Wakanai service, Wakanai-Abashiri service, Hakodate-Otaru service, Otaru-Teshiwo service, Hakodate-Otsu service, Ishikari river service.

Subsidized by Prefectural Governments concerned :—Ogasawara group services (4), Oshima group (Kagoshima) service, Oki group and main island service, Sakijima service (Loochu), outlying island service (Loochu).

General Protection :—Besides the protection given to special routes for maintaining regular service necessary for keeping up regular facilities of conveyance and intercourse, protection is extended, in accordance with the Law of Encouraging Navigation, to service of other descriptions irrespective of shippers or routes, with the object of furthering in general the cause of general shipping trade. This protection in the form of subsidy is given to all those services which satisfy the conditions specified in the law in question. To be more in detail, the law subsidises steamers which come up to the standard mentioned in the provisions and which carry on regular service between Japan and foreign coast or along the coast of foreign countries. The subsidy is at the rate of 25 *sen* per ton per 1,000 mile covered, and for steamers that are not less than 1,000 gross tonnage capable to develop the speed of 10 knots per hour. The rate increases with an increase of tonnage and speed.

The number of steamers, gross tonnage and the distance traversed by them since the law was put into operation are given in the appended table :—

Fiscal year.	Number.	Gross tonnage.	Distance traversed.
30th...	11	48,596	251,740
31st...	24	115,102	771,647
32nd	29	130,461	1,164,708
33rd	18	74,530	543,906
34th	15	57,199	471,321

VI. NAUTICAL SIGNALS.

It was in May of the 2nd year of Keio (1864) that Japan agreed in accordance with Art. XI of the tariff convention concluded with Great Britain, France, United States of America, and Holland to construct after foreign style nautical signals in the vicinity of the open ports. To fulfill this agreement the Government of the day purchased from England through the intermediary of the British Minister a set of necessary light-house materials, and also engaged an expert from the same country.

The nautical signals of Japan are divided according to construction and method of maintenance into three classes, namely, Government, communal and private. The private signals numbered over 100 formerly, but they were far from satisfactory in construction and working. At last the Government decided to prohibit the building of signals by private individuals in the 18th year, and a notification to that effect was issued in that year. It was provided that the construction of new private signals for the use of public would be prohibited in the future; that the old signals that had not been exacting due should be discontinued by the 28th year; that the due-collecting signals the establishment of which was permitted for a specified period should be stopped on the arrival of that period, and finally for other signals of the same kind that had no fixed period of existence such period should with the approval of the supervising authorities, be determined. Even at present, therefore, more or less private signals exist.

On the other hand the number of signals constructed and maintained by civic corporations is gradually increasing as is also the case with the Government signals. The appended

table will explain the condition of the work since the 2nd year when Japan constructed for the first time nautical signals after Western pattern. Here is the table :—

Year. At the end.	Government.	Communal or private.		Total.
2nd	9	108		117
5th	32	101		133
10th	55	100		155
15th	66	145		211
20th	78	140		218
25th	106	35	89	230
30th	140	45	21	206
34th	162	51	16	235

VII. OPEN PORTS.

At present there exist 30 ports open to foreign trade, these being Yokohama, Kobe, Nagasaki, Hokodate, Niigata, Ebisu, Ōsaka, Shimizu, Taketoyo, Yokkaichi, Itozaki, Shimonoseki, Moji, Hakata, Karatsu, Kuchinotsu, Misumi, Izuhara, Sasuna, Shikami, Naba, Hamada, Sakaye, Miyazu, Tsuruga, Nanao (southern basin), Fushiki, Otaru, Kushiro and Muroran. With the object of maintaining order and tranquility in those ports having busier shipping traffic Imperial Ordinance No. 139 entitled Harbor Regulations was issued in the 31st year. Three ports of Yokohama, Kobe and Nagasaki were at once placed under this legislation, which was also extended two years later to Moji.

The number of ships, both Japanese and foreign, that have entered and cleared those four ports since the enforcement of the regulations is given in the appended statement :—

Year.		Yokohama. No.	Yokohama. Tonnage.	Kobe. No.	Kobe. Tonnage.	Nagasaki. No.	Nagasaki. Tonnage.	Moji. No.	Moji. Tonnage.
31st	Japanese.	1,012	1,357,005	4,178	2,415,124	906	720,963	—	—
	Foreign.	238	872,258	291	1,039,687	292	846,185	—	—
32nd	Japanese.	2,080	3,009,340	10,261	6,036,509	2,120	1,734,939	—	—
	Foreign.	522	1,986,342	723	2,808,642	729	2,422,103	—	—
33rd	Japanese.	2,050	2,743,196	10,682	5,917,988	1,775	1,648,924	2,161	1,945,256
	Foreign.	570	2,286,083	752	3,119,569	871	3,254,457	313	959,215
34th	Japanese.	2,129	3,194,064	11,400	6,658,896	1,807	1,793,070	14,336	7,101,179
	Foreign.	554	2,360,712	722	3,194,738	749	2,773,739	839	2,703,187

PART VIII.

EDUCATION.

CHAPTER I.—Education.

General Remarks—National Education—Ordinary Education—Higher Education—Technical Education—Libraries.

I. GENERAL REMARKS.

Education in Japan dates from remote antiquity, and the national traits of faithfulness, filial piety, as well as valor have received from education a powerful stimulus. Intercourse with China and Korea naturally left on our educational system a peculiar stamp of its own, and Japan owed very much to these two neighbours in respect of her science and art. Whatever may have been the moving force of our education in its early stages, there exist ample authentic evidence attesting how even in ancient times culture and learning attained a high degree of development. Then followed centuries of intellectual retrogression occasioned by the incessant civil strife of the "Middle Ages," to be succeeded by the revival and renaissance of the period of the Tokugawa. It ought to be remembered, however, that education as it was known prior to the Restoration was extremely narrow in scope and limited in operation. In fact it practically consisted in belles-letters and what are called humanity studies, the latter based on the Chinese and Japanese classics. It has been only since the Restoration that education in its modern sense

has first been planted on our soil and that the system has been subjected to a thorough change.

True to national tradition, the Meiji Government bestowed special attention on matters of education and in the very first year of the era several institutions were either created or thoroughly reorganized. The 2nd year saw the establishment of an Imperial University, while in the 4th year educational affairs were set apart as an independent Department of State. Next year the educational system was drawn up and proclaimed, and the utmost efforts were made to promote the cause of national and higher education. Since then, in accordance with the requirements of the times, amendments of the system and improvement of the arrangement have been carried out frequently, till we witness the very full provisions which are existing to-day. In describing the existing educational system, a brief survey of the administrative organizations bearing upon that system will first be given.

The Department of Education superintends the educational affairs of the country and also maintains institutions essential for the State. In a similar way each local office superintends the educational affairs in its own jurisdiction and maintains at its own expense the schools required in it. The district maintain at it own expense the schools required in it and each municipal or rural corporation does the same. The institutions maintained by the Department are called Government institutions while those maintained by local, district or corporation expenses are called public or communal schools. The latter are of two kinds, one of them established in comformity with the order of the Government and the other established at the initiation of the corporate public body concerned. Ordinary normal schools, ordinary middle schools and higher girls' schools are schools which the provincial office are obliged to maintain in their jurisdiction, the number to be one or more according to circumstances. The schools which a municipal or rural corporation is under obligation to maintain are primary schools. All the other kinds of schools maintained by all these public bodies are maintained by such bodies of

their own accord and of course with the approval of the central Government.

Besides, there are schools established by private individuals on their own account, and these are called private schools.

Being under the direct control of the Department of State, all matters relating to the establishment or abolition or reorganization of the Government institutions are solely determined by the Department, and the presidents and faculty enjoy an official status equivalent to that of the higher civil service. All matters relating to the establishment or discontinuation or reorganization of prefectural schools are carried out by the respective prefectural offices with the approval of the Minister of Education, while the appointment or relief from office of directors and teachers is made by the prefectural Governors concerned. Those who enjoy an official status equivalent that of members of the higher civil service are appointed or relieved from office according to the method connected with that service. It ought to be added that the directors of ordinary normal schools are civil officials of the higher civil service. Matters relating to schools maintained by district or municipal or rural corporations are carried out with the approval of the Minister of Education, when they relate to the establishment, abolition or reorganization of higher girls' schools, ordinary middle schools, technical schools either of ordinary or elementary grade. The appointment or relief from office of directors and teachers of those schools has to be made in the same way as the appointment or relief in prefectural schools. The prefectured Governors concerned arrange on their own sole responsibility all those matters relating to schools of other descriptions. Similarly matters relating to the establishment, abolition or re-organization of private schools are dealt with by the prefectural Governors as in the case of district or communal schools. The appointment or relief from office of directors or teachers has to be reported to the prefectural Governors.

Government schools are allowed, in accordance with the Law of Special Finance, to set apart as permanent funds of

the schools, the income and other receipts, and in a similar way public or communal schools are allowed to create their permanent funds by setting apart their income of whatever description.

Matters relating to the establishment, abolition or reorganization of schools as also to the appointment and relief from office of the faculty members of kinder-gartens or public libraries are generally dealt with according to the corresponding process of the schools mentioned above. Then in case a private individual or individuals apply to the authorities for permission to establish and maintain at their own expense schools, kinder-gartens, or public libraries, the Minister of Education or the prefectural Governors concerned give permission when they judge that such permission should be accorded. Those private institutions then receive similar treatment and privilege as public institutions of the corresponding character.

The qualifications of the faculty members of the Government schools are determined according to that section in the Civil Appointment Regulations that relates to teachers, while the qualifications of public or private schools are limited to those who possess the license granted either by the Minister of Education or by local Governors, according to the kind of the schools. The teachers of both the Government and public schools are entitled to a pension either for themselves or to their families, in accordance with the respective legislative measures provided for the purpose.

The administrative affairs relating to education are, as described above, taken charge of by the Department of Education, prefectural offices, district offices and civic corporations. In the Department of Education several bureaux and sections are established to deal with educational affairs by division of labor, and, besides, school-inspectors are appointed to inspect the condition of the schools throughout the country. The prefectural offices also keep their own school-inspectors and assistant school-inspectors to take charge of prefectural education. The prefectural school-inspectors are appointed or relieved of office by the Emperor on the recommendation at the Ministers of Education and Home Affairs. The district also keeps its own inspectors to superintend the education of the district, and this duty of

inspection is undertaken in civic corporations by officials attending them.

Appended is a table showing the condition of the various educational institutions existing at the end of the 33rd fiscal year :—

SCHOOLS.

Kind of Schools.	Government.	Public.	Private.	Total.
Primary...	2	26,485	369	26,856
Deaf and Dumb	1	1	9	11
Ordinary Normal... ...	—	52	—	52
Higher Normal	2	—	—	2
Ordinary Middle	1	183	34	218
Higher Girls...	1	44	7	52
High	7	—	—	7
Universities	2	—	—	2
Special	3	4	41	48
Technical	9	265	23	297
Others	—	122	1,195	1,317
Total	28	27,156	1,673	28,862

TEACHERS.

Kind of Schools.	Government.	Public.	Private.	Total.
Primary...	31	91,767	1,101	92,899
Deaf and Dumb	15	15	25	55
Ordinary Normal... ...	—	958	—	958
Higher Normal	110	—	—	110
Ordinary Middle	22	3,067	659	3,748
Higher Girls...	19	525	114	658
High	345	—	—	345
Universities	291	—	—	291
Special	128	81	734	943
Technical	238	1,382	137	1,757
Others	—	90	4,273	4,363
Total	1,199	97,885	7,043	106,127

STUDENTS AND PUPILS.

Kind of Schools.	Government.	Public.	Private.	Total.
Primary...	1,124	4,622,930	59,544	4,683,598
Deaf and Dumb	231	196	194	621
Ordinary Normal... ...	—	15,639	—	15,839
Higher Normal	803	—	—	803
Ordinary Middle	321	64,051	13,943	78,315
Higher Girls...	306	9,746	1,932	11,984
High	5,684	—	—	5,684
Universities	3,240	—	—	3,240
Special	968	1,447	10,985	13,400
Technical	1,730	23,599	2,126	27,455
Others	—	4,817	80,117	84,934
Total	14,403	4,742,425	168,841	4,925,673

GRADUATES.

Kind of Schools.	Government.	Public.	Private.	Totals.
Primary...	318	736,907	8,580	745,805
Deaf and Dumb	14	8	12	34
Ordinary Normal... ...	—	7,323	—	7,323
Higher Normal	180	—	—	180
Ordinary Middle	40	5,584	2,164	7,787
Higher Girls...	91	1,832	637	2,560
High	1,019	—	—	1,014
Universities	633	—	—	633
Special	138	210	1,687	2,035
Technical	349	4,406	249	5,004
Others	—	721	15,783	16,564
Total	2,782	756,991	29,111	788,884

II. NATIONAL EDUCATION.

KINDER-GARTENS:—The first kinder-garten in Japan was established in Tokyo in the 9th year. The number has since been considerably increased, so that at present every province has one or

more kinder-gartens. The necessity of an institution for the training of qualified nurses having come to be felt, a nurse course was newly opened in the 11th year in the kinder-garten affiliated to the Tokyo Womens Normal School. The example set in Tokyo has since been followed in many provinces.

According to the existing provisions the number of children to be taken into a kinder-garten is limited to 100, which number could in special circumstances be increased to 150. Each nurse has to take charge of not more than 40 children. According to the inquiries instituted at the end of March of the 34th year, there were 241 kinder-gartens throughout the country and they comprised one Government establishment, 179 public establishments, and 61 private establishments. The number of nurses totalled 596 of which 7 were in Government establishments, 448 in public institutions and and 141 in private establishments. The pupils numbered 23,090.

Primary Schools. History :—Family schools and schools maintained by the local feudal fiefs were in olden days the seats of learning, the former being mostly for children of the plebeian class and the latter for those of the *samurai*. The schools maintained by the fiefs taught first of all Chinese classics, then penmanship and arithmetic while the humbler schools taught penmanship, reading and counting. The education in those days was, therefore, far from perfect, absolutely speaking, but such as it was it satisfied the requirements of the time, and, especially as it was supplemented by the influence of a rigid domestic education, it attained the principal end of education, that is, it formed character and it supplied culture.

Not a few primary schools based somewhat on the Western model were established soon after the Restoration, but it was not till the 4th year that schools of this grade, based on an entirely new system began to make their appearance. In that year the Department of Education brought under its direct control the six primary schools in Tokyo and at the same time it distributed among all the places throughout the country the rules put in force in those six schools. In the following year the school system was elaborated and the whole country was divided into 53,760 primary school sections each with one primary school. This elaboration of the system marks the new era in our education, for it was followed by the crea-

tion for the first time of communal and public primary schools.

The system underwent amendments and revisions on many occation, the last change taking place in the 33rd year. That change was caused by the existing Primary School Law. At the same time rules for putting it in operation were arranged and promulgated.

KINDS OF PRIMARY SCHOOLS:—Primary schools are divided into ordinary primary schools and higher primary schools. The two may either exist separately or in combination, in which latter case the schools are called ordinary and higher primary schools.

The term of an ordinary primary schools extends four years and that of higher primary schools two to four years according to circumstance. The subjects taught at the ordinary primary schools are morals, reading, arithmetic and gymnastics. Drawing, singing or hand-work, either one or more of them, may be added according to local circumstances, while for girls a sewing lesson may be added. The subjects at the higher primary schools comprise morals, reading, arithmetic, history, geography, science primers, drawing, singing and gymnastics. For girls the subject of sewing may be added. For a higher primary school of two year course either science primers or singing or both may be dispensed with, or a lesson on hand-work may be added; for one of three year course the subject of singing may be dispensed with and on the other hand elementary lessons in agriculture, hand-work or business, may be added. Lastly the lesson in English may be added to the curriculum of the four-year course in the higher primary school.

At both ordinary and higher primary schools a supplementary course may be established for the benefit of those who have graduated from the prescribed course of study, the term of this course not to exceed two years. The programme of study is different according to local circumstances.

The text-books used by primary schools are selected by local text-book committees from among the text-books compiled by the Minister of Education or those prepared by private individuals and contained in the approved list. The selection is determined on the approval of the local Governors concerned. As a rule a text-book adopted has to be used for four years, after which the selectien is to be made anew.

SCHOOL ATTENDANCE:—The school-age of children extends eight years commencing from the age of full six years and ending at full fourteen. Parents or those who act for them are under obligation to send to school the children who have reached school-age, the sending to commence at the first school year after the attainment by the child of its school-age. It ought to be added that those who engage children who have not completed the course of national education are ordered not to object to those children attending school.

ESTABLISHMENT, MAINTENANCE, FEE:—A municipal or rural community is under obligation to establish and maintain one or more primary schools sufficient to admit children of school-age residing in its jurisdiction. When, however, a rural community is judged to be incapable of bearing this obligation alone, it may enter into an agreement with another community placed in proximity and they may both maintain one common primary school. Then, when on account of the scarcity of children sufficient to form one school, a village may entrust the schooling of its children to a neighbouring village possessing a school.

The expense required for establishing and maintaining a school must be paid by the corporation concerned, but when a rural corporation is judged to be unable to pay the whole cost the district in which it is contained may give a suitable amount of grant-in-aid. In the case of a district unable to discharge this duty or in the case of a municipal corporation unable to pay the cost required for its primary schools, the obligation of making good the deficit devolves on the local treasury.

No primary school can exact a fee from its pupils, unless special circumstances existing allow it, with the approval of the local Governor, to collect the fee. The amount of this fee may not exceed for ordinary primary schools 20 *sen* a month in the case of a school existing in a municipal district, and 10 *sen* in the case of a town or village school. For a higher primary school the amount may not exceed 60 *sen* a month in the case of a municipal school and 30 *sen* in the case of a town or village school. Children of poor families unable to pay the fee may be exempted either entirely or in part. The fee may also be reduced for a family sending more than two children at the same time.

TEACHERS:—There are three kinds of teachers, regular licensed teachers who are qualified to teach all the subjects in the regular course, special teachers who have to undertake the teaching of special subjects such as drawing, singing, sewing, English, agriculture, etc. Lastly there are assistant teachers who assist the regular licensed teachers.

Teachers must have a regular license which is of two kinds, one being good for all the country and the other good for only one particular locality. The latter, called a "prefectural license," is granted by the local authorities to those who have graduated from the prefectural normal school or other schools approved of by the Minister of Education, or those who have passed the prescribed license examination. The other license called "universal license," is granted to those teachers of distinguished service who have been in the service for more than ten years; also those who, after having graduated from a higher normal school, have served not less than three years as regular licensed teachers in a city or rural primary school. This license is also granted to those who have graduated from a special course of study at a school approved by the Minister Education, provided they have been on the teaching staff of a primary school for not less than three years.

TREATMENT OF TEACHERS:—There is fixed schedule of salary for primary school teachers. This extends between the minimum of 6 *yen* and the maximum of 20 *yen* for an assistant teacher, the corresponding limit being 8 to 40 *yen* for a special licensed teacher, and 10 to 75 *yen* for a regular licensed teacher. The maximum for the last kind of teacher may be increased to 100 *yen* provided the teacher in question has rendered distinguished service to the cause of education. Further, special allowances of greater or less amount may be granted to those who undertake to teach more than 30 hours a week, while under no circumstances is the salary of a teacher reduced without his consent.

In the case a teacher dies while on active service or after he has retired, a sum of money corresponding to three times the salary he had drawn the month preceding his death, is given to his family. A special allowance over and above that sum may be granted in the case of a school-master or teacher who has rendered distinguish-

ed service. A school-master or teacher who has sustained injury or contracted disease in the discharge of his duty is allowed his medical expenses. In general, according to local circumstances, houses may be provided or house-rent granted to school-masters or teachers.

A regular licensed teacher of meritrious service who has been on the service for more than five years in one and same province receives an additional allowance of 24 *yen* a year and an assistant teacher similarly qualified receives an allowance of 18 *yen* a year. For every additional five years a regular teacher gets an extra 18 *yen* a year and an assistant 12 *yen*.

A licensed teacher who undertakes the teaching of a single-class primary school may receive an extra allowance of 24 *yen* a year, and in a similar way a teacher discharging service at a multiple-class school situated in a remote district may get extra allowance of 18 *yen*.

The outlay involved in those special allowances described above is to be disbursed by the National Treasury in accordance with the Law relating to State Aid to Primary School Teachers.

School statistics:—According to the returns compiled at the end of tho 34th fiscal year there were 23,533 primary schools throughout the country together with 3,323 branches, making a total of 26,856. Teachers on duty numbered 92,899 and pupils in attendance 4,683,598. The ratio of daily attendance was 84.61 per 100 on the school record. Ordinary Primary schools provided with the supplementary course numbered 3,503 and higher primary schools possessing similar accommodations 240, making a total of 3,743. The children of school-going age numbered 7,408,179 of which 6,531,273 reached the limit of attendance, the remaining 876,906 not reaching that limit. The ratio of attendance per 100 children who reached the limit of attendance was 93.35 for boys and 71.73 for girls, the average being 81.41.

III. ORDINARY EDUCATION.

Blind Deaf-and-Dumb Schools:—It was in the 11th year that a blind and deaf-and-dumb school was first established in Japan. It was established at Kyoto by private individuals. It ought to be added,

however, that even before the Restoration there were provisions for teaching the art of acupuncture and shampooing to the blind who were thus provided with a means of earning a livelihood. The teaching, however, was conducted in a simple manner and hardly deserved the name of education as the term is understood to-day. The first blind and deaf-and-dumb school mentioned above was subsequently converted into a municipal institution, and, owing to the grant of money and buildings made to it by the Imperial Court, it has been considerably expanded in scope. The school is now known by the name of the Kyote Municipal Blind Deaf-and-Dumb School.

Following the worthy example set by the people of Tokyo, the citizens of Tokyo also established in the 13th year a similar institution of their own, which was transferred to the management of the Department of Education. Under the new management the school has very much enlarged its scope, and it is now a model institution of its kind.

The Tokyo Blind-Deaf-and Dumb School, (this being the name which the institution now bears) is divided into two departments, ordinary and technical. The blind students in the ordinary course are taught reading, arithmetic and oratory, and those in the technical course music, acupuncture and shampooing. The deaf and dumb students in the ordinary course are taught reading, penmanship, composition, arithmetic, also written conversation and gymnastics. In the technical course they are taught drawing and painting, sculpture, cabinet-work and sewing. In general every student is made to attend to the ordinary course and to one or more subjects in the technical course; but, according to the request of the parents, this arrangement may be somewhat modified. The term of study lasts three years for blind students learning shampooing and for others it lasts five years. According to the returns made in March of the 34th year, blind and deaf and dumb schools both Government and private numbered eleven, with 55 teachers and 621 students.

Ordinary Normal Schools:—In the 5th year a normal school was established in Tokyo and for the first time a provision for training primary school teachers was created. The schools that had previously existed were private schools or family schools and it is not to be wondered at therefore that they were not particularly

successful in turning out qualified teachers. In the 6th year six Government normal schools were established at so many different places, while at the same time a women's normal school was established in Tokyo for training women teachers. In the 8th year each prefecture was made to establish its own normal school, and in the 10th year the Department of Education announced that it would disburse 50,000 *yen* a year as grant-in-aid to all the prefectural normal school expenses throughout the country. The sum was increased to 70,000 *yen* during the subsequent three years.

With the appearance of prefectural normal schools the Government normal schools previously created ceased to exist, only the Tokyo Normal School and the Tokyo Women's School left remaining to serve as models for prefectural normal schools. Shortly after a special course for training middle school teachers was established at the Tokyo Normal School.

In the 19th year the Normal School Regulations were promulgated. The regulations provided that the normal schools would be divided into higher and ordinary normal schools, the former, one in number and that one located at Tokyo, to be placed under the direct control of the Minister of Education, and the latter, one in every province, to be controlled by the local Office.

In the 30th year the regulations in question were superseded by new regulations. The provisions of the two legislative measures did not differ in the main from each other. To describe the system of ordinary normal schools as they exist at present, they are institutions where those who wish to become primary school teachers are trained. Each prefecture must have at least one normal school which may be divided into male and female departments. In some prefectures independent female normal schools are established. All these schools are under the control of the respective local Governors and the expenses required are paid out of the local treasury. The school expenses of the students are supplied by the same treasury, and in return for this help the students are obliged to give their services at one or another primary school in the prefecture, for ten years in the case of men and five years in the case of women. The schools may also keep students who pay their own school expenses.

In March, 34th year, 52 normal schools existed throughout the

country with teachers numbering 958 and with students of three different courses (main, brief and preparatory) totalling 12,062, and those of training course 3,577.

Each normal school has subjoined to it a primary course. The course serves the purpose of giving to the students practical experience in teaching. Further, to give similar opportunities to the girl-students and students of kinder-garten nurses, a kinder-garten is also provided at every normal school.

Higher Normal Schools :—Higher Normal Schools are places where teachers qualified to teacher at ordinary normal schools, ordinary middle schools and higher girls schools are taught. There are two higher normal schools, one at Tokyo and the other at Hiroshima. Placed under the control of the Minister of Education, the outlay is paid out of the Treasury, while the school expenses of the students are supplied by the respective schools. In return for this help, the students are under obligation to attend for ten years to the work of education at places specified by the Government.

The higher women's normal school :—This school trains female students who are to become teachers of normal and higher girls schools. The Tokyo Higher Women's Normal School is the only institution of this kind existing in Japan. The school is managed by the Minister of Education and the schooling expenses of the students are paid by the school. In return for this help the students are under obligation to attend to work of education for five years from the date of their graduation.

Ordinary Middle Schools :—Established for the first time in the 5th year, the ordinary middle schools as originally arranged by the regulations afterward revised in the 19th year were schools where boys intended for business or who aspired to enter higher institutions were taught. The regulations provided two kinds of middle schools, ordinary and higher. The former were to be established in the provinces and were therefore prefectual establishments while the higher institutions were Government schools to be established at important local centres. In the 27th year the Higher Middle Schools were changed to High Schools in title and were separated from the Middle Schools Regulations. The regulations were amended in the 32nd year and again in the 34th and the regulations as amended in the

latter year are now in force. According to the existing arrangement one or more middle schools are to be established in every prefecture, the exact number to be determined according to local requirements. The outlay is of course to be met out of the local treasury. A district or a rural or municipal cerporation may establish either singly or in combination a middle school of its own, but only when such establishment does not interfere with the work of primary education. Private individuals may also establish a middle school in conformity with the regulations.

In general the number of students of one middle school is fixed at not more than 400 which number may be raised to 600 under special circumstances. A single class must not contain more than 50 students, and the number of teaches must be at the rate of at least two per class for a school containing not more than five classes. For every additional class above five the number of teachers must increase at the rate of 1½ per class.

Higher Girls' Schools:—In the 5th year one girls' school was established in Tokyo and another in Kyoto, the former being a Government and the latter a prefectural institution. Similar schools have been created in almost every prefecture and district throughout the country. Indeed the Higher Girls' School Regulations enacted in the 32nd year made the establishment of this kind of school in the provinces compulsory. The regulations now in force were those revised in the 34th year. They provide that a higher girls' school gives general education of a higher class to girls, and that one or more schools be established in each prefecture with disbursements from local treasury. Provisions similar to those for ordinary middle schools apply in the case of communal schools or schools established by private individuals.

IV. HIGHER EDUCATION.

The Imperial Universities:—The Imperial Universities, one in Tokyo and the other in Kyoto, are maintained by the Treasury in accordance with the Imperial Universities Regulations.

The Imperial Tokyo University:—The Imperial Tokyo Uni-

versity, which consists of the defunct Tokyo University the Engineering College and the Tokyo Agricultural and Dendrological College had its origin in the "Foreign Work Investigation Institute" that existed in the latter days of the Tokugawa Shogunate. Transferred to the control of the Department of Education in the 4th year, the institution chanaged its name to the Kaisei Gakko in the 9th year. In the 10th year the Tokyo Medical College was united to it and with this union the name was again changed to the Tokyo University. The Engineering College was created in August of the 4th year by the Department of Public Works that was existing at that time. The institution was transferred to the management of the Department of Education in the 18th year. The College was amalgamated with the Tokyo University in the following year when the Imperial University Regulations were enacted and the combined establishment took the name of the Imperial University. In the 23rd year the Agricultural and Dendrological College managed by the Department of Agriculture and Commerce was affiliated to the Imperial University as one of its colleges.

The University comprises six colleges, namely Law, Medicine, Engineering, Literature, Science, and Agriculture. The College of Law is subdivided into two courses, that of law proper and that of politics; and in the same way the College of Medicine consists of the courses of medicine and pharmancy. The College of Engineering consists of nine courses; namely, civil engineering, mechanical engineering, shipbuilding, electric engineering, technology of arms, architecture, chemical technology, technology of explosives, mining and metallurgy. The College of Literature includes philosophy, Japanese classics, Chinese classics, Japanese history, general history, philology, English literature, German literature, and French literature. The College of Science is made up of eight courses, mathematics, astronomy, pure physics, applied physics, chemistry, zoology, botany, and geology. Lastly the College of Agriculture, comprises the courses of agricultural chemistry, dendrology, and veterinary medicine.

The number of chairs is 29 for the College of Law, 28 for the College of Medicine, 29 for the College of Engineering, 21 for the College of Literature, 23 for the College of Science, and 23 for the College of Agriculture.

The students who have finished the University preparatory course in a High School are admitted to colleges of their own choice. When, however, the number of candidates is in excess of the accommodation in a given college then admission is made by competitive examination. In case the number of applicants for admission falls short of the number of places vacant, the deficiency may be filled up with the graduates of schools judged by the Minister of Education to be of equal standing with the University preparatory course or students of another college in the University or students of the High Schools who have passed the examination arranged by the colleges concerned and conducted at the respective High Schools, the examination to be suited to the scholarship of the graduates of the Schools.

The term of study is not fixed for the College of Law, the diploma being given to those who have passed four academic examinations. In the course of pharmacy in the College of Medicine it lasts four years while in all the other colleges it is three years.

Besides the regular courses mentioned above there is a post-graduate course called the University Hall, the term of which lasts five years. The students of Law studying at the Hall are precluded during the first two years from attending to any work not connected with the subject of their special study; and the students of Literature may not attend to any work unconnected with their study, unless with the consent of the Dean of the College of Literature. These two kinds of Hall students are also prohibited from residing elsewhere than in Tokyo. The Hall students of Medicine, Engineering, Science and Agriculture are under obligation to devote themselves for the first two years to their respective courses of study; nor may they attend to work not connected with the subjects of their study unless with the consent of the Deans of their respective colleges. At the end of the two years the students have to report to their Deans the progress they have made in studies. This report is to be submitted at the end of every year by the students of Law and Literature studying in the Hall. The reports are then submitted by the Deans to the examination of the faculty meeting.

Those students of the Hall who wish to obtain the degree of Hakushi shall submit at the end of the prescribed five years to the Deans an essay on their special subject of investigations. A committee will be elected from among the members of the faculty to examine the essays submitted. The applicants for the degree may be required to undergo examination when it is judged necessary by the Committee.

The provisions apart from class-rooms are the library for the whole University; an hospital with all the accommodations thereunto pertaining for the College of Medicine; the historiographical works and reports of linguistic investigations of the Japanese language for the College of Literature; the Tokyo Observatory for the College of Science, the Observatory undertaking astronomical observations and the compilation of almanacs. The same College has also attached to it the botanical garden, seismic observatory, and marine laboratory, while the College of Agriculture has a nursery bed, veterinary hospital, orchard, and training forests.

At the end of March of the 34th year the faculty of all the University Colleges comprised 92 professors, 43 assistant professors, 69 lecturers, and 18 foreign professors, making a total of 222. The alumnii as computed from the foundation numbered 1,234 for the College of Law, 681 for the College of Medicine, 989 for the College of Engineering, 471 for the College of Literature, 361 for the College of Science, 463 for the College of Agriculture, in all 4,199. The students numbered 429 for the University Hall, 871 for the College of Law, (besides 19 in the elective course), 393 for the College of Medicine (besides 96 in the elective course), 393 for the College of Engineering (besides 5 in the elective course), 293 for the College of Literature (besides 18 in the elective course), 63 for the College of Science (besides 2 in the elective course), 56 in the College of Agriculture (besides 231 in the practical course), in all 2,869 classified into 2,498 students proper and 371 students in the elective and practical course. Besides there were 11 foreign students.

The Imperial Kyoto University:—Established at Kyoto in June of the 30th year by Imperial Ordinance, the University had at first only the combined College of Science and Engineering. In July of the 32nd year the Colleges of Law and of Medicine were

added. The Collegiate provisions are not in conformity with the Imperial Universities Regulations, so that the University possesses only the Colleges of Law, Medicine, and Science and Engineering, no College of Literature yet existing.

The College of Law comprises the two courses of Law and Politics, the College of Medicine contains only the one course of Medicine, and the College of Science and Engineering the following eight courses; viz., mathematics, physics, pure chemistry, chemical technology, civil engineering, mechanical engineering, electric engineering, and mining and metallurgy. The qualification for admission is equal to that for the Imperial Tokyo University. The term of study extends for three years in the College of Law and Science and Engineering, and no students are allowed to remain in one course for more than six years. The term for the College of Medicine lasts four years, and no student may remain in it for eight years or above.

Outsiders may attend lectures in one or more subjects at a college when there is room for them.

In the College of Medicine licensed practitioners may be admitted as elective students. Their term may not exceed one year. The number of chairs is 24 at the College of Law, 27 at the College of Medicine, and 26 at the College of Science and Engineering.

High Schools:—There are eight High Schools, respectively designated the First to Sixth High Schools, the Seventh Zōshikan High School and the Yamaguchi High School. They are all Government institutions. The First High School is located at Tokyo, the Second at Sendai, the Third at Kyoto, the Fourth at Kanazawa, the Fifth at Kumamoto, the Sixth at Okayama and the Seventh at Kagoshima. The Yamaguchi High School is at Yamaguchi.

The High Schools were formerly called Higher Middle Schools and in the 19th year five such schools were created at so many places, and gave instruction to those young men who wished to enter the University or to enter business. The schools were allowed to establish courses on law, medicine, engineering, literature, science, agriculture and commerce. The courses of medicine were in general separate establishments. At the same time there were the Yama-

guchi Higher Middle School and the Zōshikan Higher Middle School which were originally founded by private individuals but were placed under the control of the Government.

In the 27th year the High School Regulations were issued to supersede the Higher Middle School Regulations, and the new title of High School was given to these institutions. The main object of the High Schools was, according to the regulations, to teach special subjects, while, subordinate to this main work, a preparatory education for those who aspired to enter the university was given. The Third High School which already opened the law course in the 22nd year established the engineering course in the 27th year, and the Fifth High School opened that same course at the same time. In the 29th year the Kagoshima Zoshikan High School was abolished, and it was announced that the special course of study established at the third High School would be closed by the 33rd year. In the 33rd year the Sixth High School and in the 34th year the Seventh Zoshikan High School were founded. In the same year the medical departments attached to the First to the Fifth High Schools were completely separated and converted into special medical schools.

Medical Schools:—The Medical Schools are situated in Chiba, Sendai, Okayama, Kanazawa, and Nagasaki. They were formerly medical departments of the Higher Middle Schools which subsequently took the new title of High Schools. In April of the 34th year they were converted into independent institutions. Prior to the detachment, a course of pharmacy was added to each medical department. The Medical School is connected with the prefectural hospital of the place where it is situated, and the students are thus given opportunities of acquiring experience and of attending to clinical lectures.

The Tokyo Fine Art School:—This school was established in November of the 21st year. This was not the first time that matters relating to art education received the attention of the authorities, for as early as the 9th year an art school was established by the Department of Public Works and students were taught on the subjects of painting and sculpture. In the 17th year the Painting Committee was appointed in the Department of Education and in the following year Commissioners on painting and drawing were

appointed. Both the Committee and Commissioners were made to carry out inquiries into the subject of art education with special bearing on painting. The inquiries resulted in the creation of the Tokyo Fine Art School, and its was opened for work in the 22nd year. The course of study was divided into two departments, one being the ordinary course lasting two years and the other the special course lasting three years. The practical education in the former consisted of instruction on painting and moulding while in the other it consisted of painting, sculpture, and applied art, the last divided into metal-work and lacquer-work. The organization has since been changed several times, with the result that the school has finally attained its present state of comparative perfection. At present the school consists of four departments: namely, painting, design, sculpture, and applied art, the last divided into glyptic art, metal-laying, metal-casting, and lacquer-work. Architecture is lacking for the present. The course of study lasts four years in each department, and there is one year of preparatory study in each department.

The Tokyo Foreign Language School:—This school was at first established, in April of the 30th year, as an institution affiliated to the Higher Commercial School. Two years later it was separated and made an independent school under the above-mentioned title. The school has a precursor which existed as early as the 7th year of Meiji. In that year the two courses of English and French that formed part of the Kaisei Gakko and the Language School in the Foreign Office teaching German, Russian and Chinese were combined under the name of Tokyo Foreign Language School. At the same time the Tokyo English Language Language School was founded and the department of English in the Foreign Language School was transferred to it. In the 13th year the department of the Korean language was created, while in the 17th year the Higher Commercial School was founded, subordinate to the Language School. Next year the Language School and the Commercial School were combined into one institution bearing the title of the Tokyo Commercial School. Two years later the department relating to foreign languages was abolished. Eleven years later the the school was resuscitated, as described before. The present school contains the eight departments of English, French, Germany, Russian,

Italian, Spanish, Chinese, and Korean. The course of study extends for three years.

The Tokyo Music School:—The appointment in the Department of Education of a number of Commissioners on music in the 12th year was the origin of this school. In the following year a music teacher was engaged from America. He and some Japanese experts were made to carry out an investigation of matters musical both foreign and Japanese, and especially of the songs and airs that had previously existed in our country. Those that were available were set to music with or without modification, while some new airs were composed, and for the first time the adapted music was taught to the students of the Tokyo Normal School, the Tokyo Womens Normal School, and the Peers School. A number of students were also taken by the Commissioners, and those students may be regarded as the first regular music students in Japan. In the 20th year the scope of the education was enlarged, resulting in the creation of the Tokyo Music School. In the 26th year the School was subjoined to the Higher Normal School, to be again converted into one independent institution in the 32nd year.

The school contains five different departments, namely, the preparatory department, the main department, the special department, the teachers' department, and the elective department. The main department is further subdivided into the vocal course, instrument course, and singing course. The teachers' department is also subdivided into *A.* section and *B.* section, the former to train teachers qualified to teach in ordinary normal or middle schools and higher girls school, the latter in primary schools. The term of study lasts one year for the preparatory department, three years for the main department, two years for the special, two years and seven months for *A.* section teachers' course and one year for *B.* section. The term for the elective department is not definitely fixed.

V. TECHNICAL EDUCATION.

General Remarks:—The importance of encouraging technical education was early recognized by the Government; es-

pecially in recent times. The promulgation in the 27th year of the Rules relating to Apprentice Schools, of the Rules relating to Agricultural Schools in the 16th year, the Rules of Elementary Agricultural Schools in the 27th year may be mentioned among the legislative measures pertaining to industrial education. In a similar way the Rules relating to Commercial Schools were issued in the 17th year while the Rules relating to Supplementary Technical Schools were issued in the 26th year, this latter kind of school being intended to be equal or lower than the ordinary middle school in standing. The cause of technical education received in the 27th year powerful encouragement, for in that year the Law for subsidizing Technical Education was passed, by which law the State pledged itself to give grant-in-aid to technical schools judged useful for promoting technical education. At first the sum set apart on this account by the Treasury was 150,000 *yen* a year, but this has been gradually increased with the expansion of this particular branch of education and at the present time the outlay amounts of 320,000 *yen*. This sum is voted every year by the Diet and comprises the expense on account of training teachers in technical education. In the 32nd year the Technical Education Regulations were enacted and at the same time the Rules relating to different kinds of technical schools were drawn up. In the 34th year similar rules relating to fishery schools were issued, and in a year later the Rules relating to the Supplementary Technical Schools were amended and the details about their working were made public. All these endeavors made by the authorities to encourage technical education were eagerly responded to by the people, so that technical schools were founded, one after another, in quick succession. At present the technical schools of the higher and lower grades number 119 and the Supplementary Technical Schools 151.

A. Schools relating to manufacture.

Higher Polytechnique Schools:—There are three Higher Polytechnic Schools, these being the Tokyo Higher Polytechnique School, the Ōsaka Higher Polytechnic School and

the Kyoto Higher Polytechnic School. They are all Government institutions.

The Tokyo Higher Polytechnic School :—Founded in the 14th year under the style of the Tokyo Polytechnic School it assumed its present name in the 34th year. The school devotes itself to giving instruction both theoretical and practical to those who aspire to engage in manufacturing and technical work. It contains six different departments, these being dyeing, ceramics, applied chemistry, mechanics, electricity, and designs as applied to the manufacturing industry. The dyeing department is further subdivided iuto dyeing proper and weaving, while the department of electricity is subdivided into electrical engineering and chemical electricity. The school has attached to it an apprentice course.

The Ōsaka Higher Polytechnic School : — This school was founded in the city of Ōsaka in the 29th year, and it aims at educating those who have to engage in industrial work. The courses provided in it are mechanical engineering, chemical technology, and shipbuilding. The chemical department is subdivided into five different branches, these being applied chemistry, dyeing, ceramics, brewing, and metallurgy. The shipbuilding department is subdivided into the two branches of hull work and machinery.

The Kyoto Polytechnic School:—This is the latest of the three, having been established in the 35th year and opened in September of that year. The school educates those who wish to engage in manufacturing industry or to become teachers in technical schools. This school comprises the three courses of dyeing, weaving and designing.

Technical Schools :—The Technical Schools are institutions which teach technical education of secondary grade. They are either prefectural or communal schools. The curriculum of the schools of this kind comprises morals, reading, composition, mathematics, physics, chemistry, drawing, gymnas-

tics, and practical training on the technical subjects taught. Geography, history, natural history, foreign languages, political economy, statute laws, and book-keeping may be added to the curriculum, the number of such additional subjects to be one or more, according to circumstances.

The technical subjects in which a practical training is to be imparted on the students are selected from the following, the number of such subjects to be one or more according to circumstances :—Civil engineering, metal-work, shipbuilding, electricity, wood-work, mining, dyeing, ceramics, designing.

Apprentice Schools :—The school of this kind is intended to give the necessary teaching to those desirous of becoming mechanics. It is either a prefectural or communal establishment, and may be attached to either an ordinary primary or a higher primary school. The subjects taught are morals, arithmetic, geometry, physics, chemistry, drawing, and practical training on one or more technical subjects. All those subjects, with the exception of morals, may be made either optional or may be suitably adapted to local requirements, while the technical subjects for giving practical training may be limited to those easily accessible to the school. The term of study ranges from six months to four years, and the teaching may be conducted on Sundays and in the evening besides at ordinary hours. It may also be limited to certain season.

B. Schools relating to agricultural education.

Higher Agricultural institutions:—There are, besides the College of Agriculture of the Imperial Tokyo University, two higher institutions devoted to agricultural education, and these are the Sapporo Agricultural College and the Morioka Higher Agricultural and Dendrological School, both being Government establishments.

The Sapporo Agricultural College :—Founded at Sapporo, Hokkaidō, in the 8th year, this institution gives an education in the higher branches of agriculture, theoretical and applied, and other subjects required in the work of exploiting the island. The courses are the main

course, preparatory course, civil engineering course, forestry course, and practical agriculture course. One conspicuous feature in this institution is the possession of valuable property, consisting of about 6,000 *cho* of an arable land, a large tract of forest land, about 200 horses and cattle, a botanical garden measuring about 34,800 *tsubo*, and a museum containing over 12,000 specimens. These are quite sufficient to satisfy the demand of the faculty and students for materials and opportunities both of scientific research and practical training.

The Morioka Higher Agricultural and Dendrological School:—The School was opened only in April of the current year, the courses provided being agriculture, dendrology and a veterinary course.

Agricultural Schools of class A:—The schools belonging to this category are either prefectural or communal schools and are intended to give a scientific and practical training to farmers or their sons. The main aim kept in view is to impart necessary knowledge to future farmers of the middle class. The subject taught is mainly agriculture, but besides it the subjects of sericulture, forestry, and veteinary surgery may be provided, the number of subjects to be one or more.

A school of this kind has to provide itself with suitable accommodation for giving practical training to the students, this accommodation differing in nature according to the kind of the principal subject taught.

Agricultural Schools of class B :—A school of this category is lower in grade than the one mentioned in the preceding paragraph and the term of study is not to exceed three years. The object of this school is, (a) to impart an elementary knowledge agriculture on those who have finished their primary national education, and (b) to teach farmers on agricultural subjects closely connected with the local circumstances, within a short period of time.

For those who belong to the former class the term extends

for two to three years, while the term may not exceed one year for the students of the latter class. The longer term school may be a permanent establishment but the other may be temporary, and the class-rooms may be provisionally established at different places. A school of this grade may be either a prefectural or communal establishment.

In March of the 34th year the record of the two grades of schools read as follows :—

Number of schools	53
Number of teachers	407
Number of students...	4,912
Number of graduates	1,556

C. Schools relating to fish culture.

The schools of this description are comparatively small in number. There is only one institution where higher education on the subject is taught, and that is the Fishery School under control of the Department of Agriculture and Commerce. The other fishery schools are equal in standing to ordinary middle schools, and are maintained either by a prefecture or a community. The course of study at all those schools is generally divided into fishing, manufacture and reproduction. Some schools adopt one or more of the foregoing subjects as special courses of study by the students. These courses of study may be established side by side with those on marine navigation or on other technical subjects.

In March of the 34th year the fishery education record read as follows :—

Number of schools	3
Number of teachers	10
Number of students	128
Number of graduates	66

D. Schools relating to Commercial Education.

Higher Commercial Schools:—The schools of this grade are two in number, namely the Tokyo Higher Commercial School and the Kobe Higher Commercial School, both being maintained by the Government.

THE TOKYO HIGHER COMMERCIAL SCHOOL:—The school was founded in the 18th year, and during the subsequent 17 years it was the only place where higher education on commerce was given. The school course is divided into preparatory, main, and special departments.

THE KOBE HIGHER COMMERCIAL SCHOOL:—This was opened at Kobe in April of the current year and is intended to satisfy the growing demand for commercial education which demand could not be easily met by the Tokyo institution alone. In standing and all other respects the younger school is identical with the older school.

COMMERCIAL SCHOOLS OF CLASS A:—The schools belonging to this category are equal in standing to ordinary middle schools and are maintained either by a prefecture or by a community. The first school of this kind was founded in the 17th year, and since then the number has considerably increased some of the schools being somewhat higher than the regulation standard. The candidates for admission must be graduates of the four year course of a higher primary school or of equal scholarship. An examination in a foreign language may be insisted on prior to admission to the school. In general a preparatory course is provided, while in some cases a post-graduate course is provided for the benefit of the graduates.

COMMERCIAL SCHOOLS OF CLASS B:—The schools of this grade admit those who are not less than ten years old and who have finished the four year course in the ordinary primary school. The term of study extends for not more than three years. The subjects of study are nearly equal to those in the grade A. schools. These inferior schools may add some other subject of study suitable to local circumstance or may create a special course. The school is a prefectural or communal establishment.

The record of the commercial schools of the two grades read as follows in March of the 34th year:—

Number of schools	38
Number of teachers	443
Number of students	8,269
Number of graduates	857

E. Schools relating to navigation.

The only institution where a higher course of nautical education is imparted is the Nautical School maintained by the Department of Communications.

Navigation Schools of class *A*:—The schools of this class devote themselves to training mariners of the higher class. The course of study is subdivided into navigation and engineering, and the subjects of teaching comprise morals, reading, composition, mathematics, physics, geography, a foreign language, drawing, gymnastics, and practicul lessons on technical subjects. Besides, chemistry, statute law, and other subjects allied to navigation work may be added.

Navigation Schools of class *B*:—Being a school where seamen of a lower class than those in the above-mentioned schools are trained, its course of study does not generally exceed two years, and it admits graduates of primary schools. As yet no navigation school of this inferior class actually exists.

The figures with regard to navigation schools was as follows in March of the 34th year:—

Number of schools (public)	4
Number of teachers	29
Number of students	319
Number of graduates	118

F. Technical Supplementary Schools.

The Technical Supplementary Schools are places where elementary knowledge on technical subjects is given to those who are either actually engaged in technical business or are desirous to enter such business. They are at the same time intended to supplement primary education. This being their object, the Technical Supplementary Schools present very irregular aspects in points of detail. The subjects taught are agriculture, manufacture, commerce and fishery, and in most cases one school combines two or more subjects. The term of study is also diverse, extending for two or three years in some schools and in others only six months or so. Then some may collect a fee, of not more than 30 *sen* at most, while no fee is collected in others. Teachers of this kind of schools are generally teachers

of primary schools who attend to this particular business in their spare hours, and the number of these teachers does not exceed three or four for one school, besides the schoolmaster. Provisions for training teachers of this sort are now sufficiently maintained, for some of the local technical schools provide a special course to answer this purpose, and the summer schools opened every year under the patronage of the Department of Education also offer excellent opportunities to primary school teachers and other desirous of being initiated into the subject.

The majority of the students are boys or girls over ten years old who have finished the ordinary primary school course, but not a few are over fourteen years old whose schooling has been neglected for one cause or other. For this kind of students special arrangements are provided.

It was in the 27th year that the term Technical Supplementary Schools was first officially adopted. In the year 22 schools of this grade were founded the number being increased to 186 by June of the 34th year. After that year some schools were converted into schools of another nature while a few were closed so that the number fell to 151 a year hence. This decrease in number was more ostensible than real, and on the whole the cause of this branch of education is making steady progress. Of the 151 schools about one-third are enjoying a grant-in-aid from the Treasury. The Technical latest returns on the Schools are as follows:—

Number of schools	151
Number of teachers	314
Number of students	8,850
Number of graduates	1,234

G. Technical Education Funds.

As mentioned in the preceding part, the Government has been paying since the 27th year no small sum, comparatively speaking, towards the encouragement of technical education. The schools enjoying this help are generally technical schools maintained by the public funds, and those maintained by industrial or commercial interests may also participate in the benefit. The sum set apart on this account was at first limited to 150,000 but has since been increased till at present it amounts to 320,000 *yen*. This increase was owing

to the founding of a large number of new technical and commercial schools subsequent to the coming into operation of the encouragement programme. At first there were about forty or fifty schools that were allowed to participate in the fund, but the corresponding number increased to 179 in March of the 34th year and to 210 a year after.

Theoretically the help from the funds may come up to the level of the sum disbursed by the founders of a school for maintaining it, but owing to the large number of schools entitled to the allowance from the funds, the rate of the help generally ranges from 16 to 25 per cent of the amount of maintenance expense.

H. Training of Technical School teachers.

With the advance of technical education and the increase of the number of schools of this description and of the students, provisions for supplying teachers qualified to undertake the teaching are required. In pursuance of that object the Department issued in April of the 32nd year Rules relating to Technical Education Teachers, the rules being amended in April of the 32nd year, with the object of enlarging the scope of operation. Some details of the working of this provision will be mentioned below.

Help to Students who engage to become teachers of technical schools:—The sum of 6 *yen* a month is being furnished by the Department of Education to those students who engage to become teachers of technical schools after their graduation, the students being those of the following institutions:—course of agriculture (both main and practical) of the College of Agriculture of the Imperial Tokyo University, Tokyo Higher Commercial School, Tokyo Higher Polytechnique School, Tokyo Nautical School, Tokyo Fine Art School, Fishery School (under control of the Department of Agriculture and Commerce).

Training Schools:—Besides, the College of Agriculture, the Tokyo Higher Commercial and the Higher Polytechnic Schools establish teachers' training courses of agriculture, commerce and technology respectively, and teachers qualified to teach at the Technical Supplementary Schools are being trained.

VI. LIBRARIES.

The Imperial Library is a Government establishment and is situated in Tokyo. It was established in the 5th year in the premises of the Museum controlled by the Department of Education. It is the pioneer institution of the kind in Japan.

In March of the 34th year the Library contained 349,211 volumes of Japanese and Chinese works, 52,008 volumes of foreign works, in all 401,419 volumes. During the one year ending March of that year the Library was open 334 days, and was visited by 113,573 persons, the daily average of 340. The accommodation being judged inadequate to satisfy the growing number of visitors and of the books, pictures, etc. to be kept, the work of constructing new buildings has been started.

Of the local libraries, the one in Kyoto is the oldest, followed by the two in Ōsaka. In March of the 34th year libraries of all kinds numbered 42 containing 326,548 volumes of books, etc. During the one year ending March of the same year the visitors to the local libraries numbered 82,737, the daily average of 9.3 persons. Of these libraries the most noteworthy in the relative perfection of their accommodation are the library belonging to the Imperial Education Society in Tokyo, and the library maintained by the prefecture of Kyoto. The library maintained by the prefecture of Miyagi comes next. The rest are of smaller scope and are visited by a smaller number of people.

The end.

THE MEIJI ERA.

	A. D.		A. D.
1st year Meiji	1868	19th year Meiji	1886
2nd „ „	1869	20th „ „	1887
3rd „ „	1870	21st „ „	1888
4th „ „	1871	22nd „ „	1889
5th „ „	1872	23rd „ „	1890
6th „ „	1873	24th „ „	1891
7th „ „	1874	25th „ „	1892
8th „ „	1875	26th „ „	1893
9th „ „	1876	27th „ „	1894
10th „ „	1877	28th „ „	1895
11th „ „	1878	29th „ „	1896
12th „ „	1879	30th „ „	1897
13th „ „	1880	31st „ „	1898
14th „ „	1881	32nd „ „	1899
15th „ „	1882	33rd „ „	1900
16th „ „	1883	34th „ „	1901
17th „ „	1884	35th „ „	1902
18th „ „	1885	36th „ „	1903

WEIGHTS AND MEASURES.

The *Kin* = 160 *momme* = 1.325 lb. avoirdupois.
„ *Kwan* = 1,000 *momme* = 8.281 lbs. „
„ *Shaku* = .994 foot.
„ *Sun* = 1.193 inches.
„ *Ken* = 6 *shaku* = 5.965 feet.
„ *Chō* = 60 *ken* = $\frac{1}{15}$ mile, 5.4229 chains.
„ *Ri* = 36 *chō* = 2.44 miles.
„ *Ri* sq. = 5.9552 sq. miles.
„ *Chō*, land measure = 2.45 acres.
„ *Koku*, liquid = 39.7033 gallons.
„ „ dry = 4.9629 bushels.
„ *To*, liquid = 3.0703 gallons.
„ „ dry = 1.9851 pecks.

1 metre = 3.3 *shaku*.
1 gram = 0.26667 *momme* ($\frac{4}{15}$ *momme*).

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Author

Title Japan in the beginning of the 20th century.

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